Canon

DIAL 35

(REFERENCE NO. 1-45401)

REPAIR MANUAL

CANON CAMERA COMPANY, INC.

TOKYO, JAPAN

CANON REPAIR GUIDE

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PREFACE

Canon Dial 35 is a product of Canon's proud quality control system. As a result of wide market research, traditionally high technical skills and rigid inspection before delivery, Canon's Dial 35 is enjoying full confidence of its buyers as a high quality easy to handle completely automatic demi-size (18 x 24mm) camera.

Because of the above-mentioned manufacturing system, Dial 35 is almost breakdown-proof. As long as the instructions given in the instruction booklet are carefully followed, this camera can be maintained in top functioning condition.

If by chance, however, something should go wrong, repair the trouble completely according to the technical instructions given in the following pages. Canon Camera Co. is prepared to supply sufficient parts and tools for performing these repairs.

For details as to the ordering of parts and tools, please send your inquiries to

Export Department,
Canon Camera Co., Inc.,
Fukihara Bldg.,
3, Ginza 5-Chome, Chuo-Ku
Tokyo, Japan.

For any details and informations regarding tools and testing equipments, please ask to,

Service Department,
Canon Camera Co., Inc.,
312 Shimomarukocho, Ohtaku,
Tokyo, Japan.

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HOW TO USE THIS SERVICE MANUAL

Canon Service Manual consists of the following six sections: General, Repair Manual, Repair Guide, Service Tools List, Price List of Spare Parts and Service Manual Reports, which will be issued if the outward appearence, function or design of the product is changed. These six sections are divided by index sheets for easy identification.

GENERAL

The General section consists of information useful to the repairman. It may consist of any or all of the following: technical specifications, design principals, circuit explanations, new or unusual repair technics, or any other information useful to the repairman.

REPAIR MANUAL

1. Repair Manual consists of the Exploded Views, Parts List of various portions of the product and Index of Parts Numbers.
2. Parts shown in an Exploded View are all listed on its right page being classified according to their mechanism.
3. An Exploded View and its corresponding Parts List are arranged under the same page number.
4. The Exploded Views are arranged according to the correct procedure of disassembling the Canon product but you may not always follow this order exactly when you remove a certain part. Sometimes you can carry out your purpose by removing only one part of this disassembling procedure.
5. The Table of Contents is arranged in the names of each mechanism. When you want to identify a part in exposure meter, see the item, EXPOSURE METER in the table and see the page indicated.
6. Such a part as 19-9775 that can be disassembled into still more several parts is shown in the Parts List with the explanatory indented column.

   e.g. 19-9775 Top Cover (B.P.)
   13-7095 Meter Window
   13-7160 Counter Window

7. When more than one piece of an identical part is used in a portion of the product, we indicate it by multiplying the part's name by its quantity.

   e.g. X24-170228 Screw × 4

8. When several part numbers are shown in square brackets, choose the suitable one of these parts according to the condition.

   e.g. [X32-505211 / X32-505212] Washer × N

   For the most cases, the difference is in thickness of the washer.
9. When a part name is multiplied by N as in

   X32-504621 Washer × N,

   use suitable numbers of the part accrding to the condition.
10. (B.P.) is the abbreviation of Bonding Part.

11. The part number of the part which can be supplied as a separate service part though it is one of the components of a bonding part, such as the Window or the Light Shield, is shown in the round brackets. The bonding part in this case includes those parts above said when ordered as the form of the bonding part.
12. When you want to identify a part from its part number, see the Index of Parts Numbers at the end of the repair manual.

REPAIR GUIDE

1. On the supposition of the most various troubles with the products that might happen, Repair Guide presents as many troubles, causes and remedies for them as possible. But we Canon Inc. firmly believe that none of these troubles can happen.
2. The troubles are classified according to their mechanism as they are shown in the Table of Contents. Several causes are shown to one trouble and the remedies are arranged according to the causes.

SERVICE TOOLS LIST

1. Service Tools List is the list in which the names and uses of the testing equipments required for the service after sales are given.
2. As for the specifications and uses about these testing equipments in details, refer to the instruction the Service Manual Report prepared for each testing equipment.
3. Special screwdrivers are listed in numerical order, e.g, in the sign of a special screwdriver T06A-13-8033-1, the number 13-8033 stands for the parts number of the parts which should be attached or removed by this special screwdriver.

PRICE LIST OF SPARE PARTS

1. Price List of Spare Parts presents the unit price of the service parts you received from us.
2. The unit price is F.O.B. Tokyo/Yokohama.
3. The page number on the Repair Manual in which each part is described is shown on the right side of each part so that you may easily identify.
4. All the prices of the Spare Parts on the Price List section are subject to change without notice.

SERVICE MANUAL REPORT

Service Manual Report is for the purpose of giving a prompt and exact information when some revisions are made on the products, namely, when the products are partly changed by the rationalization of production, the development of function, change of outward appearance and so on. Therefore, Service Manual Report is to be published whenever any revision is made on the products.

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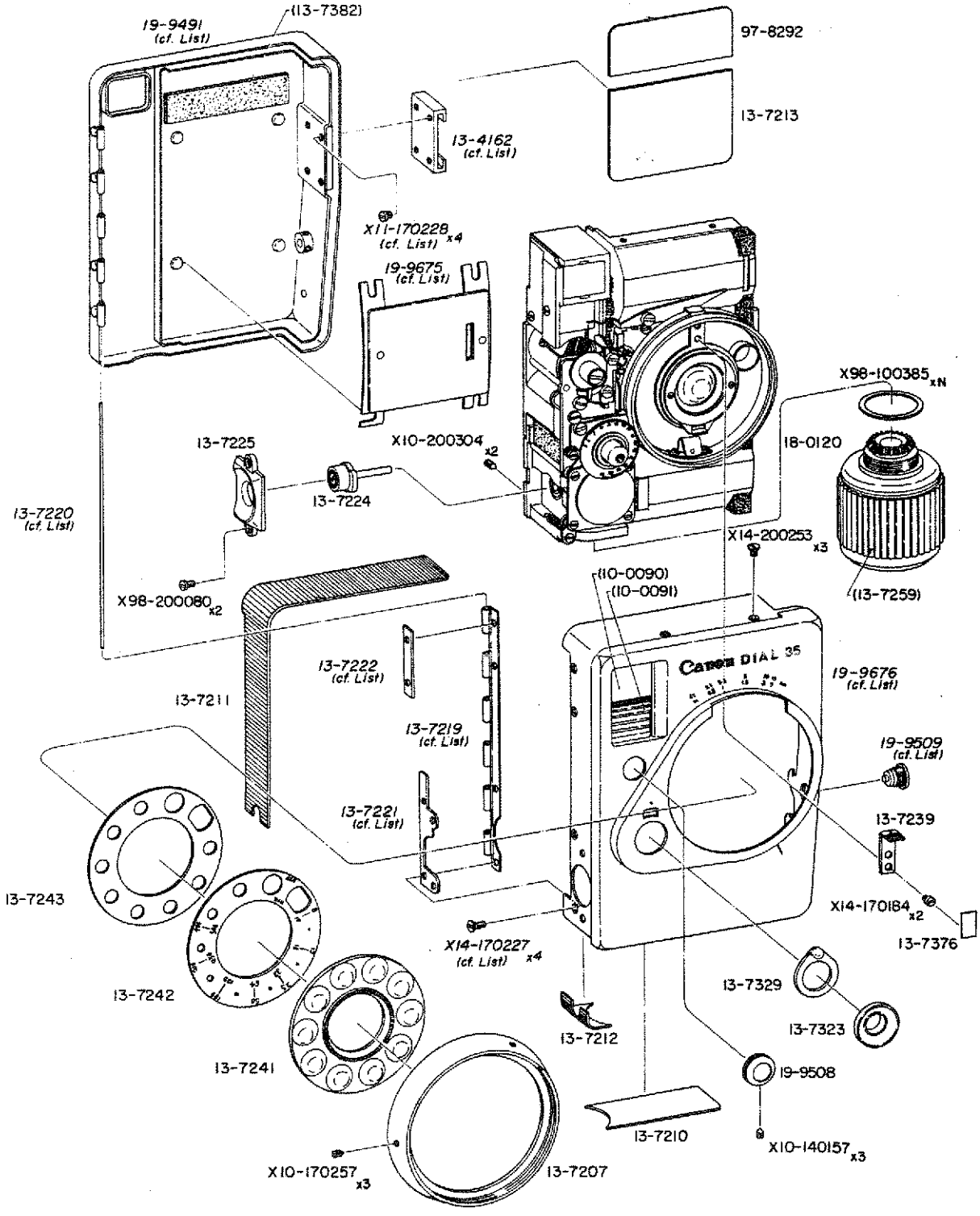
EXPLODED VIEW

of

CANON DIAL 35



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PARTS LIST

COVER

13-7210	Leather
13-7211	Leather
13-7212	Leather
13-7213	Leather
13-7323	Shutter Button Guard
13-7329	Counter Window
18-0144	Front & Back Cover (Unit)

Parts which is mentioned by italic in the illustration, for example, 19-9491 (*cf. List*) etc. is included in the Cover Unit 18-0144.

The Cover Unit 18-0144 is supplied either unit or single parts with the number mentioned by the italic.

10-0090	Front Glass
10-0091	Illuminating Window
13-4162	Accessory Shoe
13-7219	Hinge
13-7220	Shaft of Hinge
13-7221	Set Plate
13-7222	Set Plate
13-7382	Light Shield
19-9491	Back Cover (B. P.)
19-9509	Flash Socket (B. P.)
19-9675	Pressure Plate (B. P.)
19-9676	Front Cover (B. P.)
X11-170228	Screw×4
X14-170227	Screw×4
97-8292	ASA-DIN Guide Plate
X14-200253	Screw×3

WINDING GRIP

18-0120	Winding Grip (Unit)
13-7259	Grip Rubber
X10-200304	Setscrew×2
X98-100385	Washer×N

REWIND BUTTON

13-7224	Rewind Button
13-7225	Rewind Button Frame
X93-200080	Screw×2

SHUTTER RING

13-7207	Shutter Ring
13-7241	Multiple Lens
13-7242	Aperture Disk
13-7243	Click Dowel
X10-170257	Setscrew×3

MANUAL KNOB

19-9508	Manual Knob (B. P.)
X10-140157	Setscrew×3

FOCUSING KNOB

13-7239	Focusing Knob
13-7376	Cover
X14-170184	Screw×2

ADJUSTMENT: Remove the push rod, and increase or decrease the number of washers between the shutter button and push rod.

3. Position adjustment of first stop claw

CHECK: Turn the sprocket, and check the position of the stop claw in relation to the gauge on the way the shutter charges.

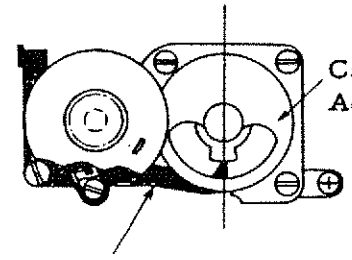


Fig. 31

n. b. If a film counter is provided, move the counter stopper so that it does not overlap the film counter arm, before conducting the check.

STANDARD: The stop claw should be on the standard surface of the gauge.

ADJUSTMENT: Loosen the screw for fixing adjusting lever located on the first stop claw, and move the adjusting lever right or left.
After tightening the screw, apply Dia-bond to it.

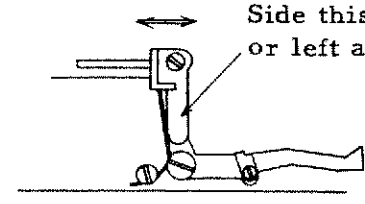


Fig. 32

Attachment of film counter:

Set the film counter as illustrated in Fig. 33. Set the spring at the position after wound one round, then tighten the nut.

CHECK: Check if the counter turns and returns smoothly.

4. Position adjustment of counter stopper

CHECK: 1. Turn the sprocket to charge the shutter.

2. Take off the first stop claw by turning the counter counterclockwise.

3. Check if the counter arm returns to the notch of the counter stopper when the rewind lever is depressed.

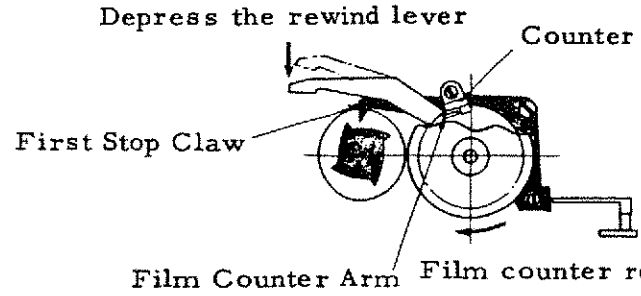


Fig. 33

4. Check the space between the tip of the governor claw and the first stop claw when you detach your finger from the rewind lever being in the state of the item 3 above.

5. Check the S position of the counter.

STANDARD: 1. The counter S position should be on the line connecting the center of the governor drum and the center of the shutter button, see Fig. 34.

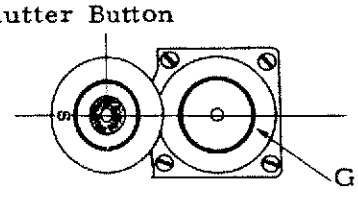


Fig. 34

2. The counter should return to the S position without fail after checked the Item 1 to 3.

3. When checking the Item 4, there should be a space between the tips of the governor claw and first stop claw.

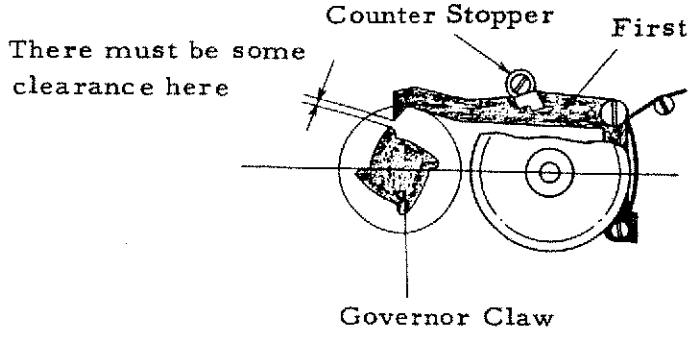


Fig. 35

ADJUSTMENT: For all adjustment for the above, correct the positioning of the counter stopper or bend it.

5. Position adjustment of second stop claw

CHECK: 1. Check the operating condition of the stop claw by directly pressing the second stop claw at first, then pressing the shutter button.

2. Check the engaging condition of the second stop claw and release ring.

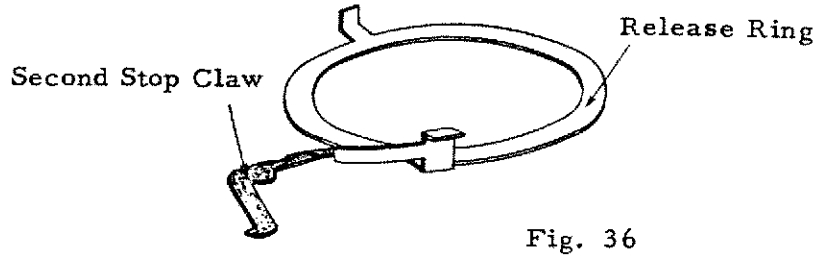


Fig. 36

STANDARD: The stop claw should touch the center of the width of the release ring.

ADJUSTMENT: Bend the raised portion of the release ring.

6. Attachment of governor

CHECK: Insert the governor into the governor drum, and when let it rotate by your finger, check if it smoothly rotates for a certain time.

ADJUSTMENT: If the rotation is heavy or the rotating time is short:

1. Governor drum shaft is inclined: Replace it.
2. Inside is unclean: Clean the inside of the governor drum and the bearing of the governor with benzine, then apply a small amount of Launa to the tip of the drum shaft.
3. Governor brake is faulty: Replace it.

ATTACHMENT AND CHECK: Attach the governor to the governor base, disengage the stop claw and let the take-up spool rotate. Confirm that the interlinked operation of worm and helical governor is smooth.

HELICOID ADJUSTMENT

Work	Specifications
Inspection	It should rotate smoothly with a certain weight.
Attachment	1. Attachment of helicoid unit The focusing ring should rotate lightly.
	2. Attachment of lens Fit the raised portion of the focusing ring to the fork of the key. Screw the lens unit to an appropriate position and temporarily fix it with two screws.
Adjustment	1. Adjustment of key end play Bend the key with a pair of pliers so that the end play between the key and focusing ring may be 0 ~ 0. 1mm. The helicoid unit should move smoothly.

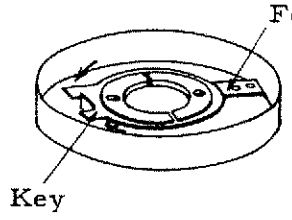


Fig. 37

Bend the key in the arrow direction for 0 ~ 0. 1mm play between the key and focusing ring.

2. Position adjustment of zone focus index

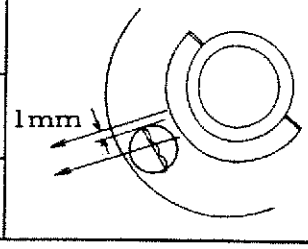
Focus	Mark	Position of Focusing Lever
		
1m		
0.8m		

Fig. 38

1. Index positioning for 1m focus
   Bend the portion of the focusing lever shown in Fig. 39 so that the index should point the portrait mark when the focusing lever is set at the portion shown in Fig. 38.

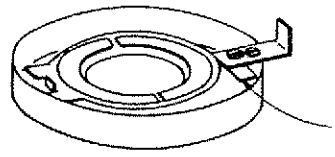


Fig. 39.

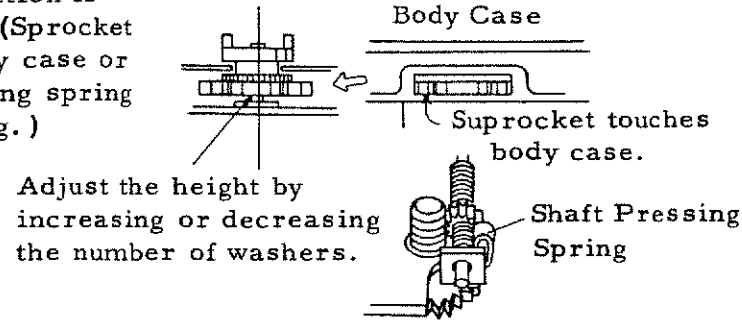
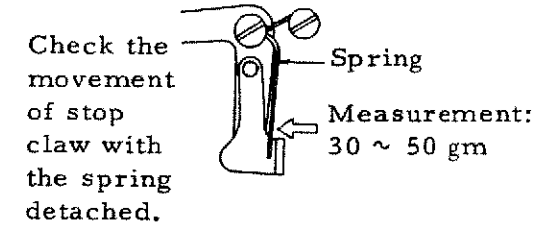
2. Confirmation of index position for
   The index should be above the long distance mark when the focusing lever is touched with the stopper.

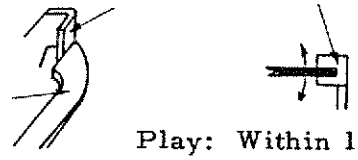
3. Confirmation of index position for 0.8m
   The index should be below the portrait mark when the focusing lever is set at the position shown in Fig. 38.

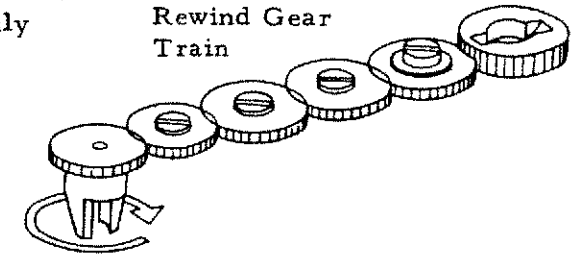
3. Adjustment of focusing
   When 200-mm T-type collimator is used, one who views zero position of Canonet at +9, view the zero position of this camera setting the graduation at +13 instead. This is only the standard setting.

Work	Specifications
Inspection	1. Inspection of inside of shutter unit 1.1 Operating condition of blade opening lever and blade operating lever. 1.2 Installed position of flash contact and timing of switch-in. 1.3 Operating condition of governor 1.4 Operating condition of release lever 2. Movement of aperture lever
Attachment	1. Attachment of EE cam Be careful not to bend the aperture lever. 2. Manually set the aperture at F22. 3. Align the positions of release ring and intermediate ring. 4. Attachment of shutter 4.1 Start attaching the shutter at the position turned 90 deg. clockwise from the normal position. 4.2 Insert the tip of the EE cam between the base plate and exposure meter and gently turn the shutter unit counterclockwise with care not to bend the aperture lever. 4.3 When the shutter unit comes to the normal position, set the release ring and the intermediate ring to the required positions, with pressing the shutter hard toward the base plate and letting the unit move slightly right or left centering the normal position. 4.4 Tighten four screws form inside the aperture. 4.5 Inspection o Operation of release ring If the ring does not operate normally, remove the screws for setting the shutter and repeat the procedures on and after the Item 4.3. o Charge allowance If the charge allowance is less or more than 0.4 ~ 0.6mm, adjust it by correcting the positioning of the shutter. 4.6 Soldering of lead wire. 4.7 Attachment of CdS element.

4.8 Attachment of speed setting ring.
If the surface of the nut is higher than or equal to the helicoid attaching surface, attach the speed setting ring over again.

	Trouble		Cause & Remedy	
1.	Winding is disabled.	1.1	Oil on shutter blades	Overhauling.
		1.2	Governor gear operates improperly. (In most cases, gear teeth are deformed.)	Replace the gear.
		1.3	Teeth of helical gear are deformed.	Replace helical gear (19-9494).
		1.4	Worm gear and helical gear are improperly engaged.	Adjust their engagement.
		1.5	First stop claw position is improperly adjusted.	Refer to "Position adjustment of first stop claw", page 22.
		1.6	Brake arm of governor (19-9504) is deformed.	Replace the governor.
		1.7	Drum shaft is inclined or calking is loose.	Replace governor drum (19-9674).
		1.8	Take-up spool torque is excessive.	Adjust it to 50 ~ 10 g-cm.
		1.9	Index lever is improperly adjusted. (Timing is too slow.)	Refer to "Adjustment of timing", page 12.
		1.10	Sproket rotation is unsmooth. (Sprocket touches body case or shaft pressing spring is too strong.)	 Body Case Suprocket touches body case. Adjust the height by increasing or decreasing the number of washers. Shaft Pressing Spring
2.	Continuous film advance.	2.1	Shape of first stop claw tip is improper.	Replace the first stop claw (19-9514).
		2.2	Position of first stop claw is improperly adjusted.	Refer to "Position adjustment of first stop claw", page 22.
		2.3	First stop claw does not operate smoothly. (Stop claw bent, bur or spring 97-6128 worn).	

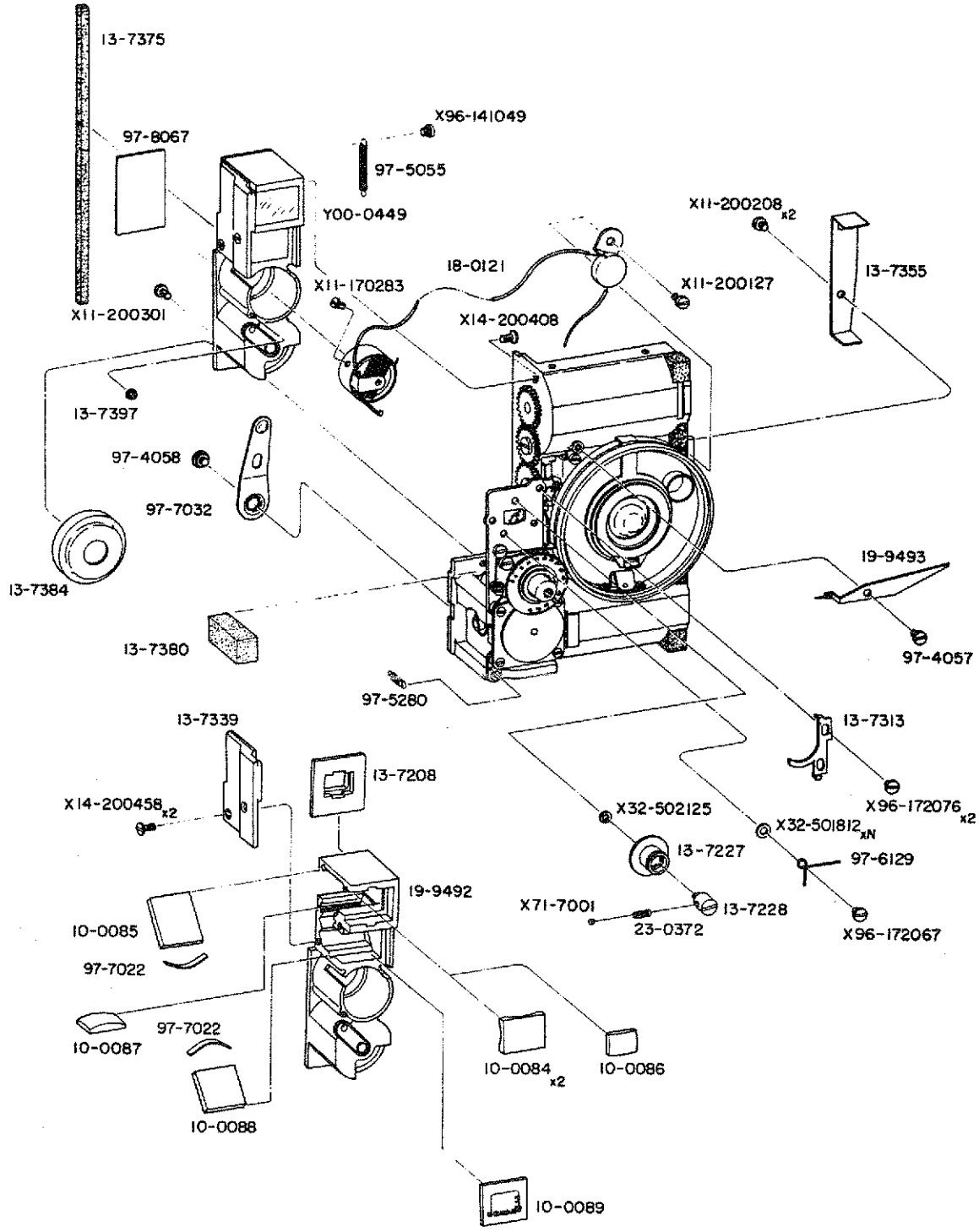
	2.4	Shape of second stop claw tip is improper.	Replace the second stop claw (13-7393).
	2.5	Second stop claw does not operate smoothly.	Refer to "Position adjustment of second stop claw", page 24.
	2.6	Index lever is improperly adjusted. (Timing is too fast).	Refer to "Adjustment of timing" page 12.
	2.7	Film counter (19-0332) is faulty itself.	Adjust it.
	2.8	Shape of governor claw is improper.	Replace governor (19-9504)
	2.9	Governor rotates too fast.	Replace the governor for varying the combination of drum and governor.
	2.10	Charge has no allowance.	Refer to "Adjustment of charge allowance", page 11.
	2.11	Pressure plate has insufficient pressure.	Adjust or replace pressure plate (19-9675).
	2.12	Projection of sprocket is insufficient.	 Move the sprocket base toward the sprocket being projected against film plane and set it. n.b. Re-adjust charge position and timing of index lever.
	2.13	Position of charge lever is improper.	Charge Lever 1 Charge Lever 2  Play: Within 1 mm Bend charge lever 2 so that it may not come off charge lever 1 even when charge lever 2 is swayed full upward or downward. If vertical play is too much, adjust it with washers.
3. Continuous release (Successive winding during shutter release)	3.1	Leaf spring is worn or improperly adjusted.	Refer to "Adjustment of plate spring position", page 11.
	3.2	Second stop claw does not operate normally.	Refer to "Position adjustment of second stop claw", page 24.
4. Rewinding stops midway.	4.1	Sprocket does not rotate smoothly and lightly in reverse direction.	Refer to Item 1.10 "Sprocket rotation is unsmooth.", page 29.

		4.2	Rewind gear train does not rotate smoothly and lightly.	Rewind Gear Train  Rewind Fork If end play of rewind fork is insufficient, extract washer to increase it. If gears need oil, lubricate them after cleaning.
5.	Grip is charged during rewinding.	5.1	Rewind fork has insufficient end play.	Extract washer (X98-040375) under rewind fork (14-0816).
		5.2	Sprocket does not rotate lightly. (Sprocket touches the body case or the shaft pressing spring is too strong.)	Refer to Item 1.10 "Sprocket rotation is unsmooth.", page 29.
		5.3	Gear train does not rotate lightly.	Refer to Item 4.2 "Rewind gear train does not rotate smoothly and lightly.", page 31.
		5.4	Take-up spool torque is excessive.	
		5.5	Grip is defective.	Replace grip (18-0357).
6.	Film counter does not feed or stops midway.	6.1	Engagement of pinion gear (97-0096) and counter gear is insufficient.	Adjust the engagement.
		6.2	Counter gear slip torque is insufficient.	Replace coil spring (97-5053).
		6.3	Pinion gear shaft is bent.	Repair or replace the pinion gear shaft.
		6.4	Counter gear touches shutter speed ring.	Adjust the gear.
7.	Film counter does not return to S.	7.1	Rewind lever (13-7309) operating range is insufficient.	Adjust the range by bending the end of the rewind lever in the arrow direction. Rewind Lever

EXPLODED VIEW

of

CANON DIAL 35



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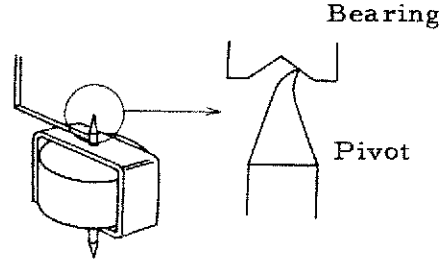
		7.2	Counter stopper is improperly adjusted.	Refer to "Position adjustment of counter stopper", page 22.
8.	Shutter cannot be charged.	8.1	Charge has no allowance.	Refer to "Adjustment of charge allowance", page 11.
		8.2	Timing of index lever is improper.	Refer to "Adjustment of timing", page 12.
		8.3	Projection of sprocket is insufficient.	Refer to Item 2.12 "Projection of sprocket is insufficient.", page 30.
		8.4	Pressure plate is insufficient.	Adjust (by bending the plate spring of pressure plate) or replace the pressure plate.
9.	Shutter button does not return (or return is unstable).	9.1	Release ring (13-7292) is bent.	Repair or replace the release ring.
		9.2	Screw for setting gear the shutter release lever is loose.	Tighten the screw over again.
10.	Meter needle does not swing.	10.1	CdS lead wire soldering is faulty.	Repair it.
		10.2	Lead wire is shorted or broken.	Replace the lead wire.
		10.3	Mercury battery retainer spring is worn.	Adjust it by bending the retainer spring.
		10.4	CdS element is shorted inside (with mounting metal).	Replace the CdS element.
		10.5	Mercury battery is faulty.	Replace the battery.
		10.6	Meter is defective. (broken wire, etc.)	Replace the meter. Refer to pages 14 ~ 18.
11.	Meter needle stick.	11.1	Clamp needle touches base plate or clamp plate.	Correct it. Refer to page 15.
		11.2	Clamp needle touches manual knob.	Refer to "Adjustment of manual operation", page 17.
		11.3	Meter needle touches frame plate.	Correct it.
		11.4	Meter pivot tip is bent (by shock).	Replace the meter.



12.	In manual the needle does not move.	12.1	Space between clamp needle and manual knob is too wide.	Refer to "Adjustment of manual operation", page 17.
		12.2	Clamp needle touches front cover.	Correct it.
		12.3	EE cam (14-0847) does not return properly.	Correct it.

CANON SERVICE TOOLS LIST

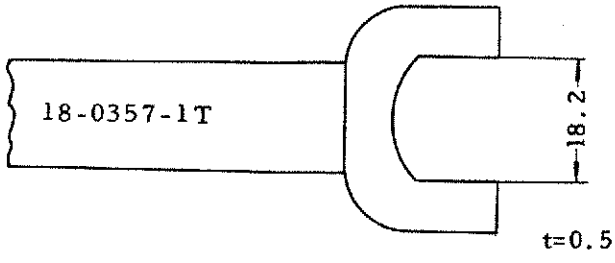
CANON DIAL 35-2
(REF. NO. 1-45421)

TESTING EQUIPMENTS

Use		Names of Testing Equipment
Focus	1	200mm T-type Collimator
	2	Focus Mirror for 35mm
Field of View	1	Universal Parallax Collimator
	2	Frosted Glass
Exposure Meter	1	Inspection Device for Canon Meter

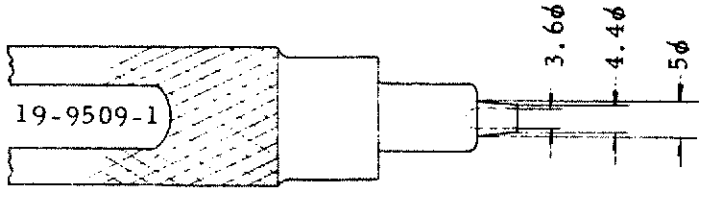
SPECIAL SCREWDRIVERS

T0199-18-0357-1T



Tightening Winding Grip

T0199-19-9509-1



Tightening Flash Terminal

PARTS LIST

VIEWFINDER

Y00-0449	Viewfinder (Unit)	
	10-0084	Lens×2
	10-0085	Half Mirror
	10-0086	Lens
	10-0087	Lens
	10-0088	Mirror
	10-0089	Mask
	13-7208	Eyepiece Frame
	13-7339	Finder Cover
	19-9492	Finder Base (B.P.)
	17-7022	Plate Spring×2
	X14-200458	Screw×2
13-7375	Light Shield	
13-7380	Light Shield	
13-7384	Battery Cover	
13-7397	Collar	
97-5055	Coil Spring	
97-8067	Battery Plate	
X11-200301	Screw	
X14-200408	Screw	
X96-141049	Screw	

EXPOSURE METER

18-0121	Exposure Meter (Unit)
X11-170283	Screw
X11-200127	Screw

ZONE FOCUS INDEX

19-9493	Zone Focus Index
97-4057	Screw

CLAMP

13-7313	Clamp
97-6129	Spring
X32-501812	Washer × N
X96-172067	Screw
X96-172076	Screw

MANUAL BOSS (cf. p1)

13-7227	Manual Boss
13-7228	Manual Shaft
23-0372	Coil Spring
X32-502125	Washer
X71-7001	Steel Ball

BATTERY CONTACT

97-4058	Pin Face Screw
97-5280	Coil Spring
97-7032	Battery Contact

LIGHT SHIELD

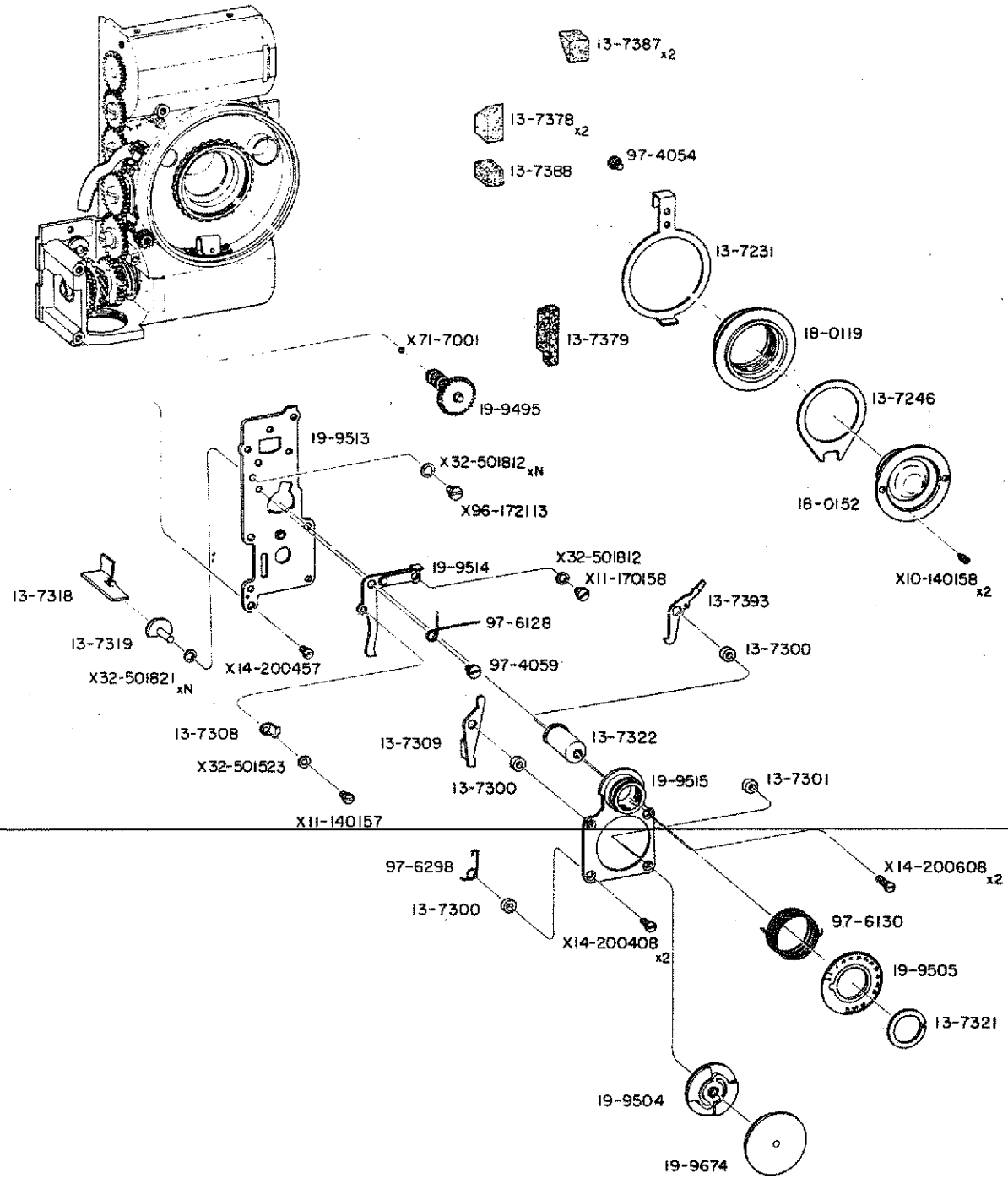
13-7355	Light Shield
X11-200208	Screw×2

REF. NO. 1-45401

EXPLODED VIEW

of

CANON DIAL 35



SCALE 1-1.5

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PARTS LIST

TAKING LENS

13-7231	Focusing Lever
13-7246	Key
18-0119	Helicoid (Unit)
18-0152	Taking Lens (Unit)
97-4054	Screw
X10-140158	Setscrew×2

BASE PLATE

13-7308	Counter Stopper
19-9513	Base Plate (B. P.)
19-9514	Stop Lever (B. P.)
97-4059	Screw
97-6128	Spring
X11-140157	Screw
X11-170158	Screw
X14-200457	Screw
X32-501523	Washer
X32-501812	Washer×N
X96-172113	Screw

GOVERNOR

13-7300	Step Collar×3
13-7301	Collar
13-7309	Rewind Lever
13-7393	Stopper
19-9504	Governor (B. P.)
19-9515	Governor Base (B. P.)
19-9674	Governor Drum (B. P.)
97-6298	Spring
X14-200408	Screw×2
X14-200608	Screw×2

COUNTER DIAL

13-7321	Retainer
19-9505	Counter Dial (B. P.)
97-6130	Spring

SHUTTER RELEASE

13-7318	Release Lever
13-7319	Push Rod
13-7322	Shutter Button
X32-501821	Washer-N

WORM GEAR

19-9495	Worm Gear (B. P.)
X71-7001	Steel Ball

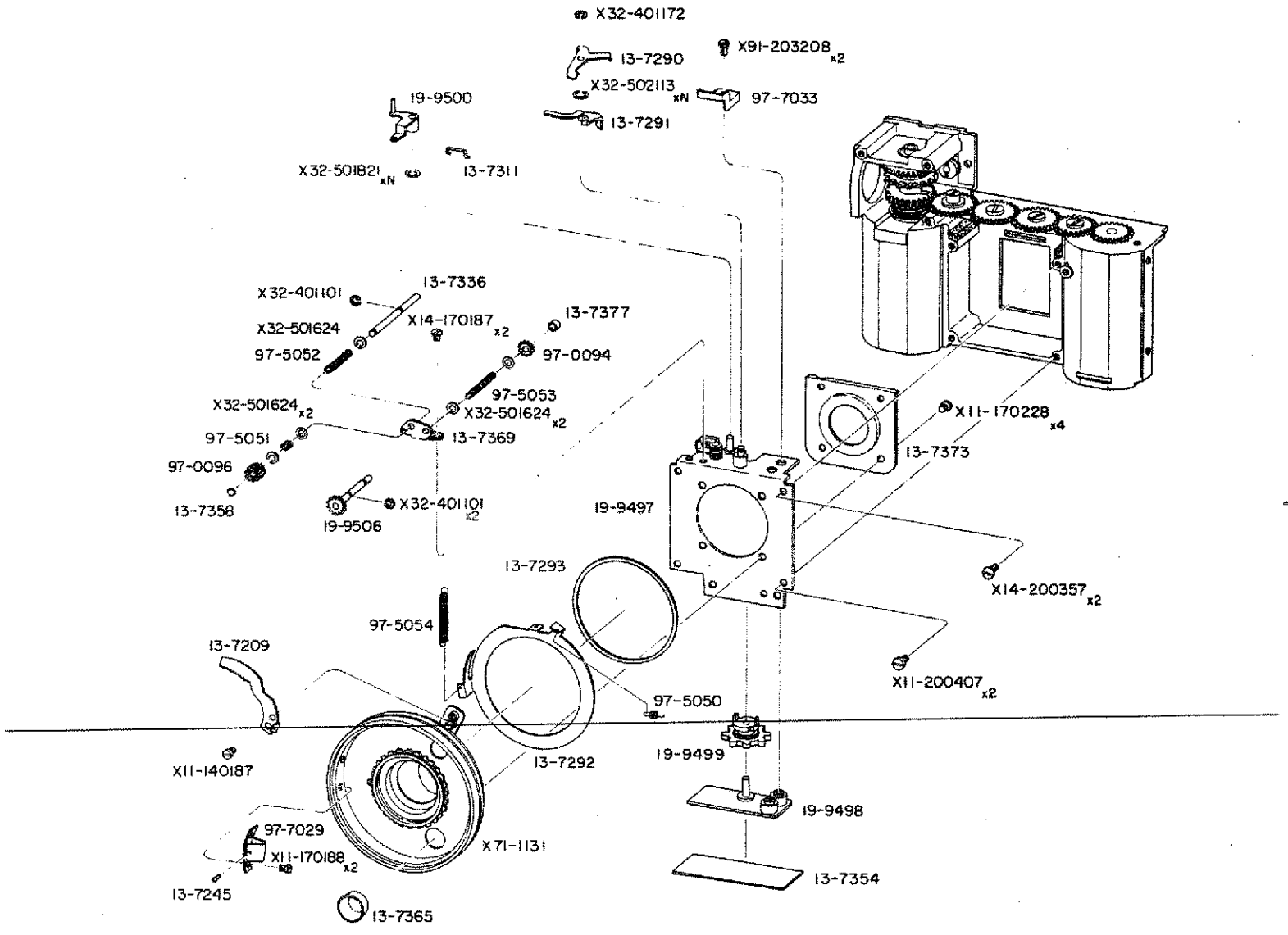
LIGHT SHIELD

13-7378	Light Shield×2
13-7379	Light Shield
13-7387	Light Shield×2
13-7388	Light Shield

EXPLODED VIEW

of

CANON DIAL 35



SCALE 1-1.5

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PARTS LIST

SHUTTER BASE

13-7311	Hook
13-7373	Dust Cover
19-9497	Shutter Base (B. P.)
19-9500	Shutter Release Lever (B. P.)
X11-170228	Screw×2
X11-200407	Screw×2
X14-200357	Screw×2
X32-501821	Washer×N

SHUTTER

13-7209	EE Cam
13-7245	Click Dowel
13-7292	Release Ring
13-7293	Washer
13-7365	CdS Hood
97-5050	Coil Spring
97-5054	Coil Spring
97-7029	Click Spring
X11-140187	Screw
X11-170188	Screw×2
X71-1131	Shutter Unit

SPROCKET

13-7290	Charge Lever
13-7291	Index Lever
13-7354	Light Shield
19-9498	Sprocket Base (B. P.)
19-9499	Sprocket (B. P.)
97-7033	Plate Spring
X32-401172	Retaining Washer
X32-502113	Washer×N
X91-203208	Screw×2

COUNTER GEAR

13-7336	Resetting Shaft
13-7358	Retainer
13-7369	Bearing
13-7377	Collar
19-9506	Counter Gear (B. P.)
97-0094	Idle Gear
97-0096	Pinion Gear
97-5051	Coil Spring
97-5052	Coil Spring
97-5053	Coil Spring
X14-170187	Screw×2
X32-401101	Retaining Washer×3
X32-501624	Washer×5

EXPLODED VIEW

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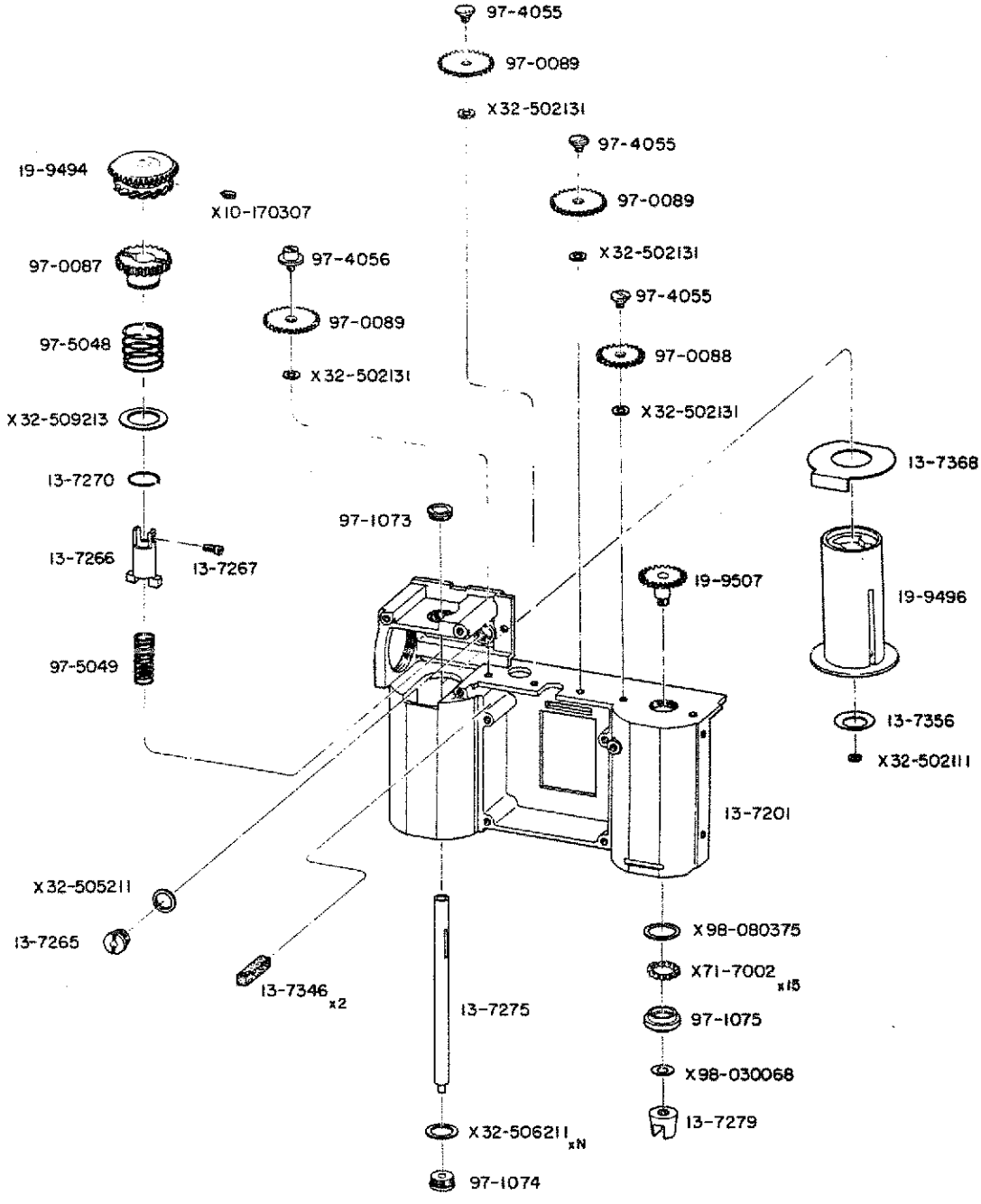
CANON DIAL 35



SCALE 1-1.5

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PARTS LIST

BODY CASE

13-7201	Body
13-7265	Worm Gear Bearing
13-7346	Light Shield×2
X32-505211 X32-505212	Washer×N

TAKE-UP SPOOL

13-7356	Friction Washer
13-7368	Light Shield
19-9496	Take-Up Spool (B. P.)
97-1073	Spool Bearing
X32-502111	Washer

REWIND GEAR

13-7279	Rewind Fork
19-9507	Rewind Gear (B. P.)
97-1075	Rewind Fork Bearing
X71-7002	Steel Ball×15
X98-030068	Washer
X98-080375	Washer

IDLE GEAR

97-0088	Idle Gear
97-0089	Idle Gear×3
97-4055	Screw×3
97-4056	Screw
X32-502131	Washer×4

DRIVE SHAFT

13-7266	Clutch
13-7267	Key Screw
13-7270	Retainer
13-7275	Drive Shaft
19-9494	Helical Gear (B. P.)
97-0087	Back Gear
97-1074	Drive Shaft Bearing
97-5048	Coil Spring
97-5049	Coil Spring
X10-170307	Setscrew
X32-506211	Washer-N
X32-509223	Washer

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CANON REPAIR MANUAL

SHUTTER for CANON DIAL35

(REFERENCE NO. 1-45401)

CANON CAMERA COMPANY INC.

TOKYO, JAPAN

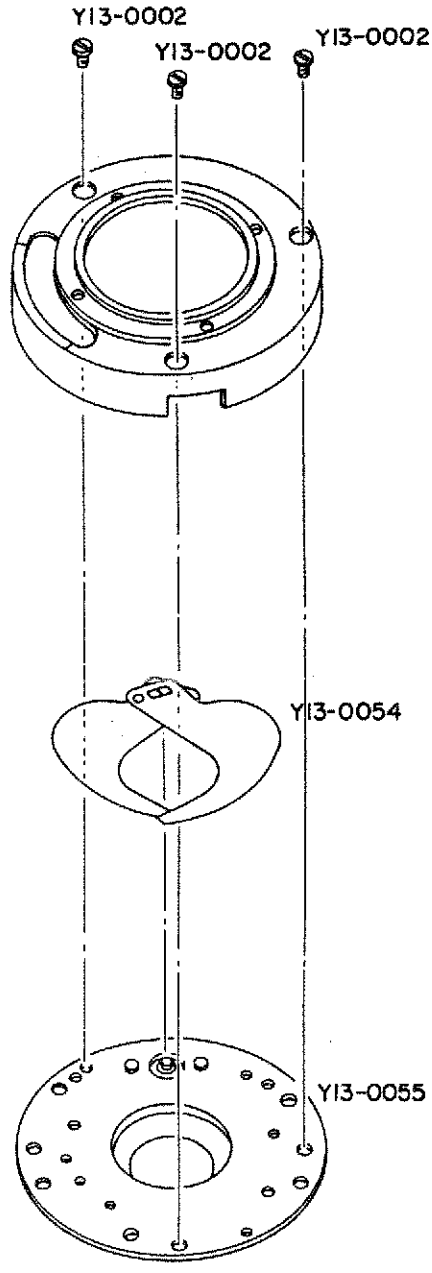
First Printing, December, 1965

REF. NO. 1-45401

EXPLODED VIEW

of

CANON DIAL35



NO SCALE

CANON CAMERA CO., INC. ®

PARTS LIST

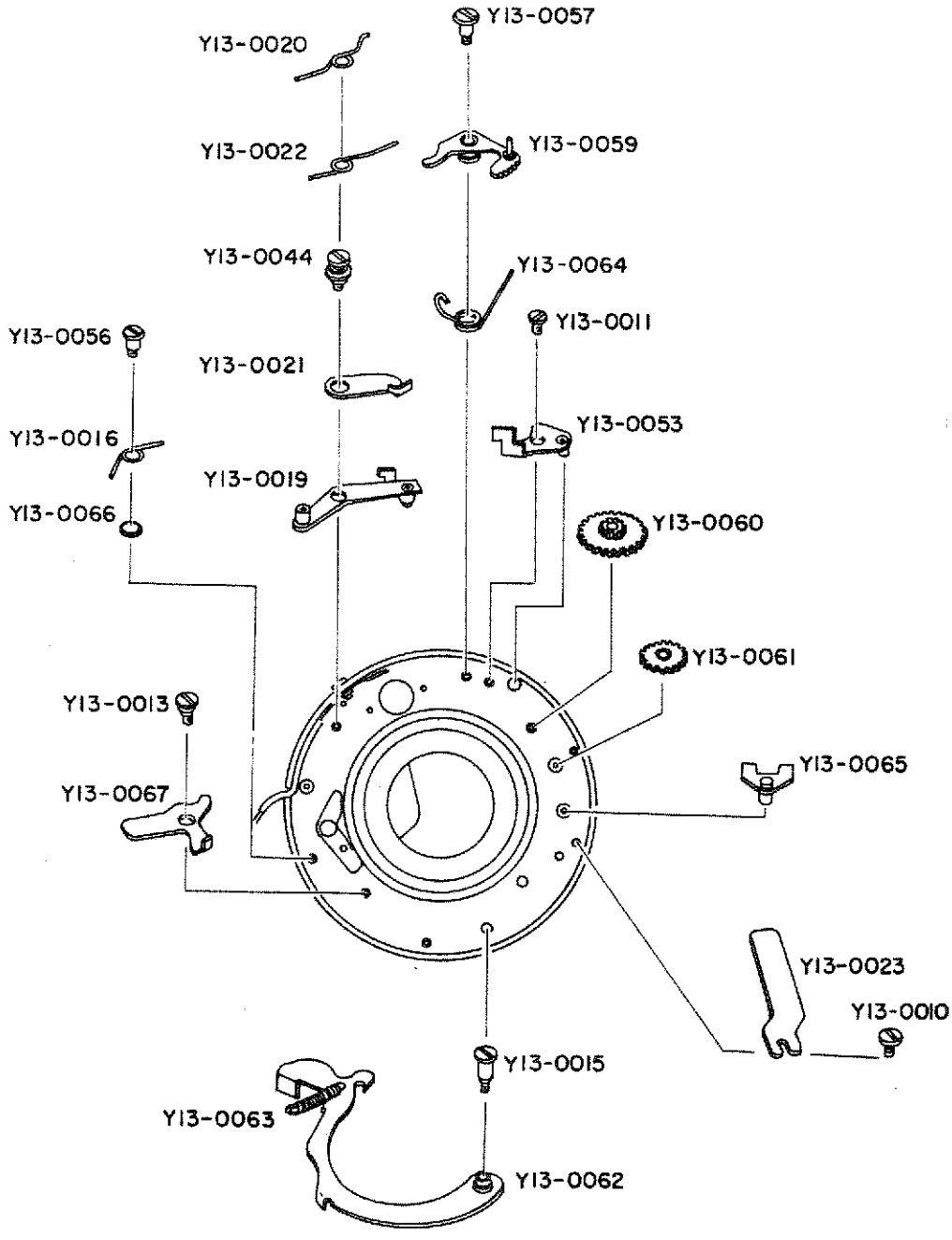
Y13-0002	Screw x 3
Y13-0054	Shutter Blade x 2
Y13-0055	Base Plate

REF. NO. 1-45401

EXPLODED VIEW

of

CANON DIAL35



NO SCALE

CANON CAMERA CO., INC. ®

PARTS LIST

Y13-0010	Screw
Y13-0011	Screw
Y13-0013	Screw
Y13-0015	Screw
Y13-0016	Latching Lever Spring
Y13-0019	Blade Operating Lever
Y13-0020	Blade Operating Spring
Y13-0021	Blade Opening Lever
Y13-0022	Blade Opening Spring
Y13-0023	Upper Plate
Y13-0044	Screw
Y13-0053	Guide Plate
Y13-0056	Screw
Y13-0057	Screw
Y13-0059	1st. Gear
Y13-0060	2nd. Pinion Gear
Y13-0061	Star Wheel Pinion Gear
Y13-0062	Cocking Lever
Y13-0063	Cocking Lever Spring
Y13-0064	1st. Gear Spring
Y13-0065	Anchor
Y13-0066	Spring Sleeve
Y13-0067	Release Lever

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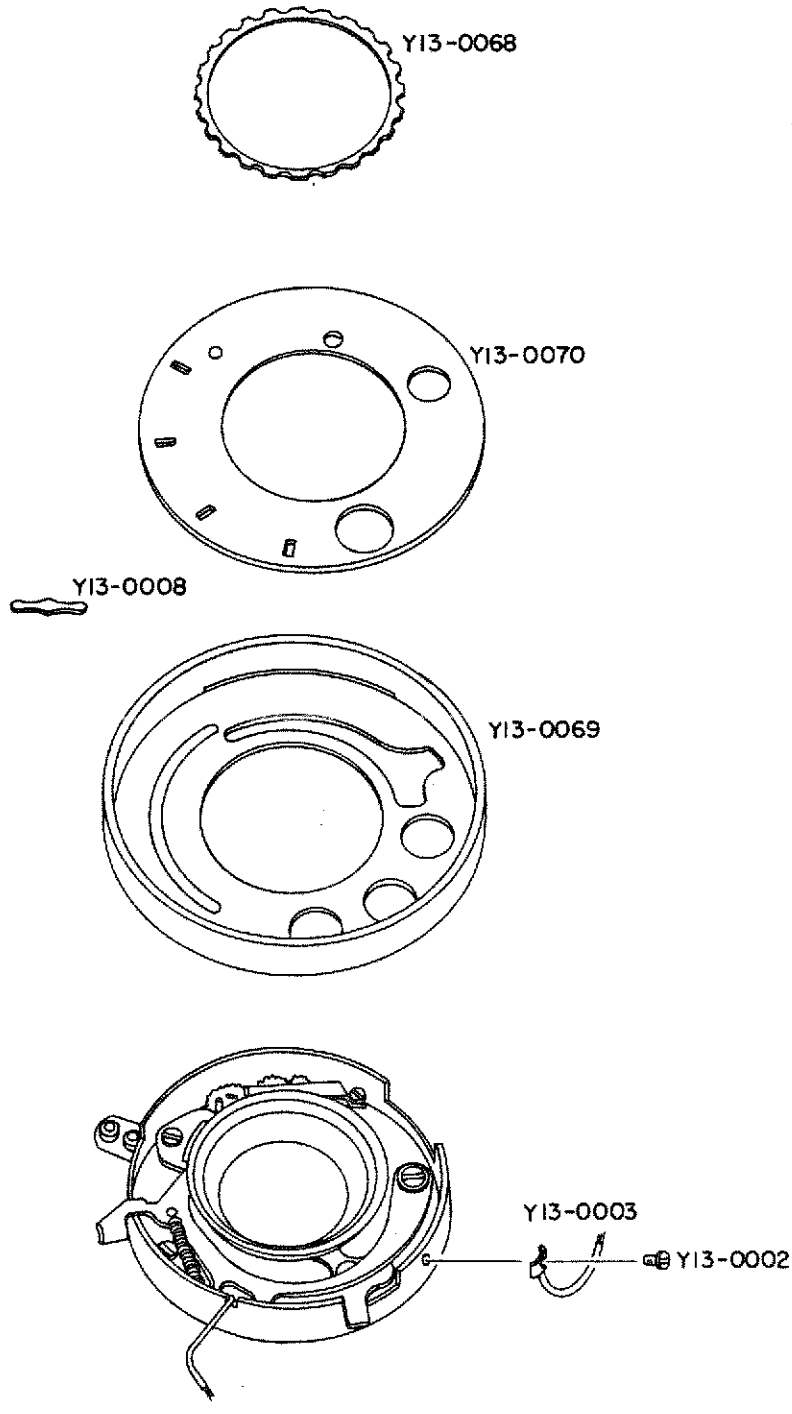
EXPLODED VIEW

of

CANON DIAL35



NO SCALE

PARTS LIST

Y13-0002	Screw
Y13-0003	Cord Supporting Plate
Y13-0008	Click Spring
Y13-0068	Nut
Y13-0069	Speed Setting Ring
Y13-0070	Front Cover Plate

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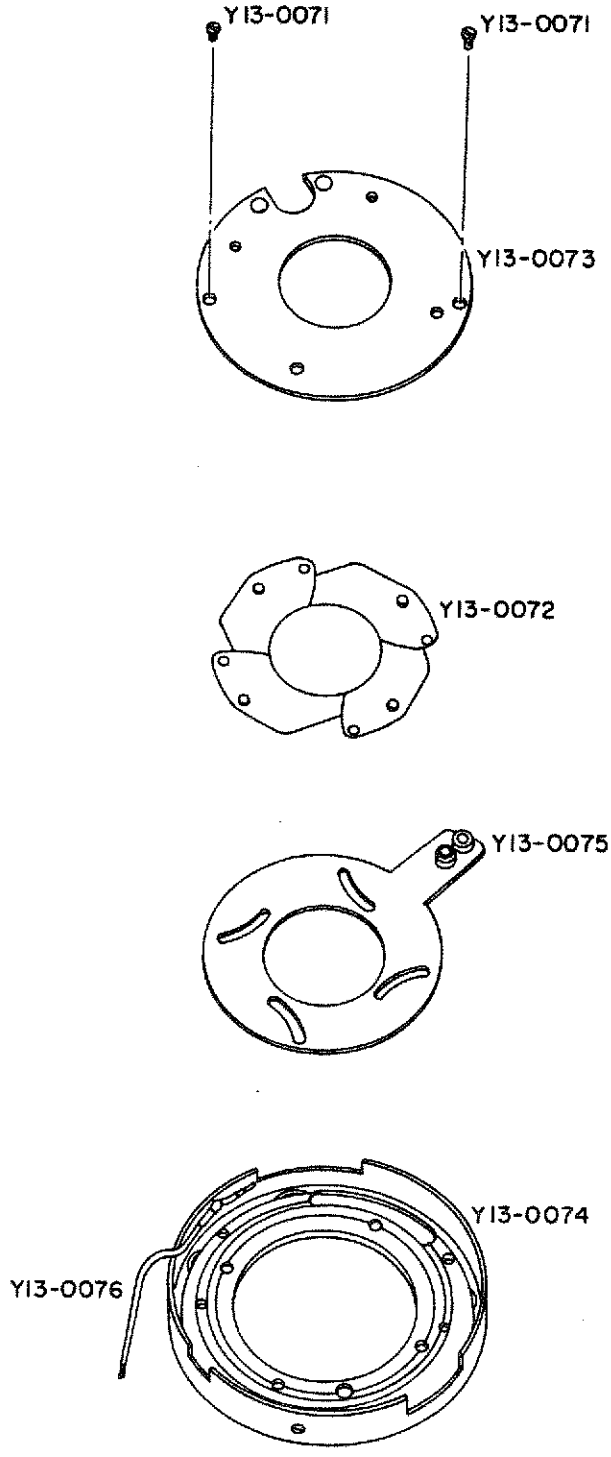
CANON DIAL35



NO SCALE

CANON CAMERA CO., INC. ®

PARTS LIST

Y13-0071	Screw x 2
Y13-0072	Diaphragm Blade x 4
Y13-0073	Stationary Bearing Ring
Y13-0074	Shutter Casing
Y13-0075	Diaphragm Actuating Ring
Y13-0076	Syncronizing Cord

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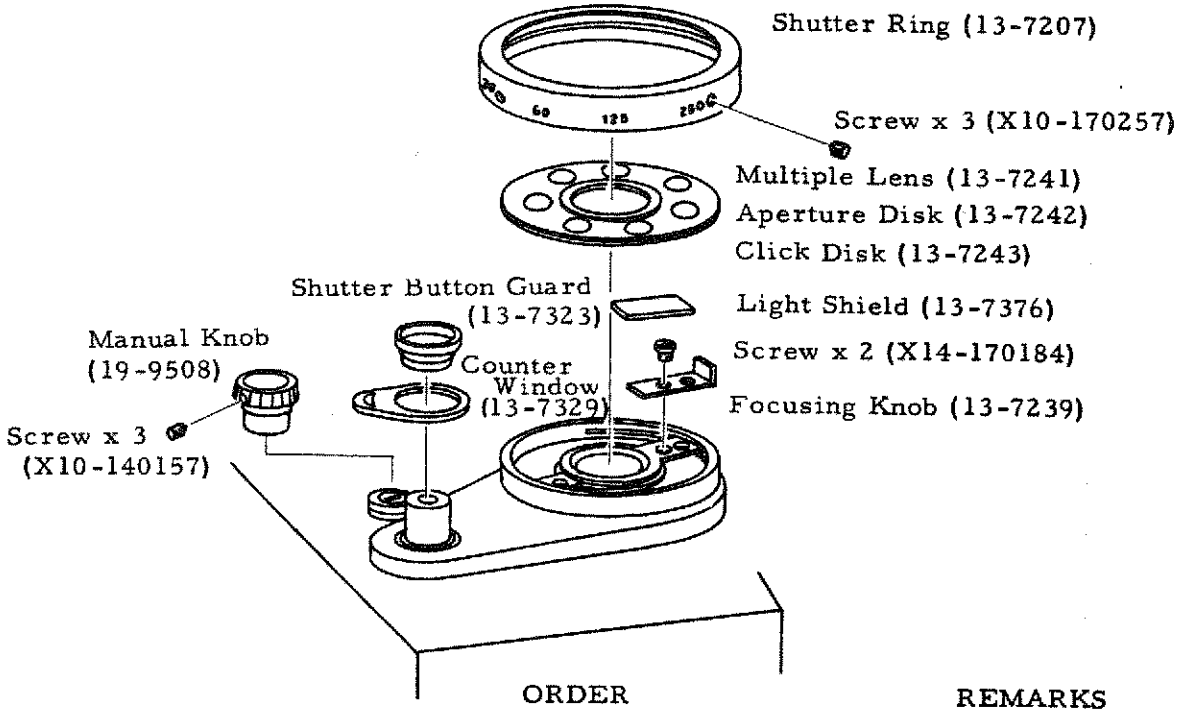
FRONT & BACK COVER DISASSEMBLING (1)



	ORDER	REMARKS
1. Removal of shutter ring	Pull out screw X10-170257	
	pull out shutter ring 13-7207 Multiple lens 13-7241	
	Aperture Disk 13-7242 Click Disk 13-7243	
	Peel off Light Shield 13-7376	Light Shield is glued on.
	Remove Focusing Knob 13-7239	
2. Removal of manual knob	Remove 3 screws X10-170253	
	Remove manual knob 19-9508	
3. Removal of shutter button guard	Remove shutter button guard 13-7323	Button guard is removed by turning to the left.
	Remove counter window 13-7329	

FRONT & BACK COVER DISASSEMBLING (2)

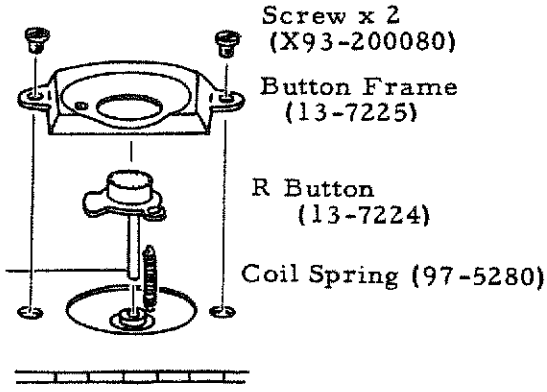


Fig. 1

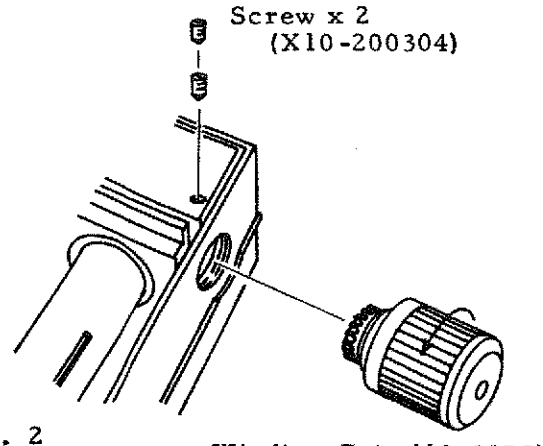


Fig. 2

		ORDER	REMARKS
4.	Removal of R button	Remove 2 screws X93-200080 Remove button frame 13-7225 Remove spring 97-5280 Remove R button 13-7224	
5.	Removal of grip	Remove 2 screws X10-200304 Remove winding grip 18-0120	(1) Screws are of double sets. (2) Grip is removed by turning to the left. (3) Be sure the spring is unwound before removing.

FRONT & BACK COVER DISASSEMBLING (3)

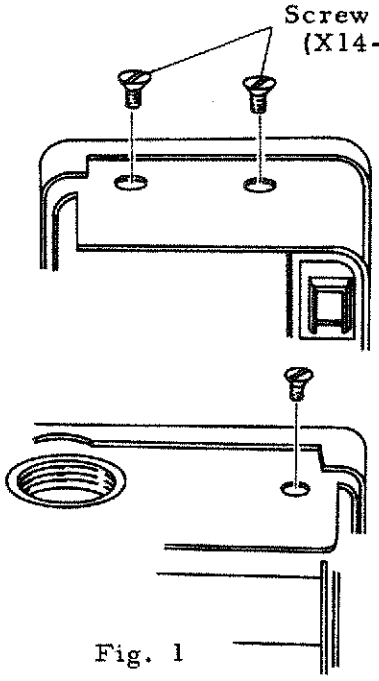


Fig. 1

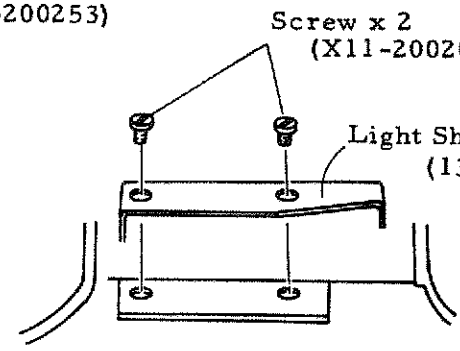


Fig. 2

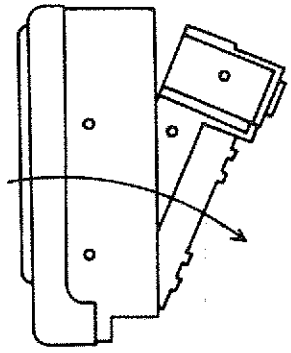


Fig. 3

		ORDER	REMARKS
6.	Peeling off leather	Peel off the leather (large, medium, small) from the sides of the body case.	Large leather 13-7211 Medium leather 13-7210 Small leather 13-7212
7.	Removal of case	Remove 3 screws 14-200253	(Refer to Figs. 2 and 3)
		Remove 2 screws X11-200208	
		Remove light shield 13-7355	
		Remove case unsolder terminal	For simple removal of case refer to Fig. 3

FINDER & METER DISASSEMBLING

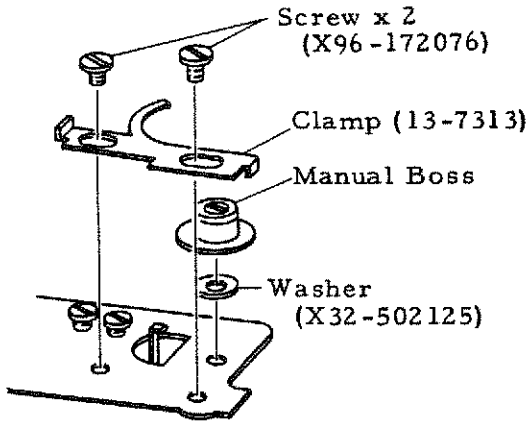


Fig. 1

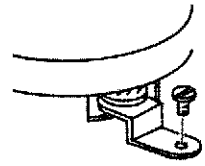


Fig. 2

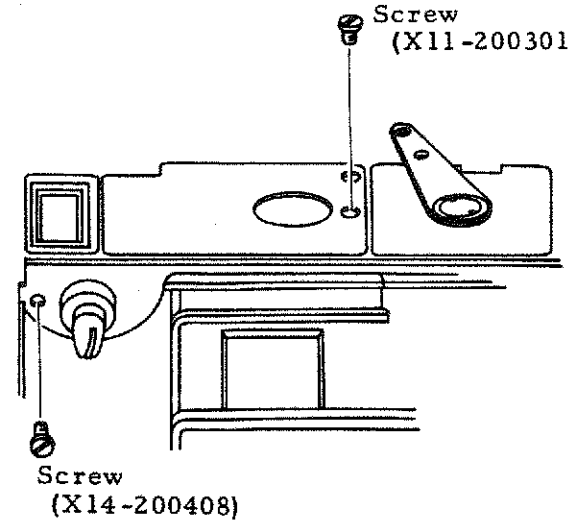
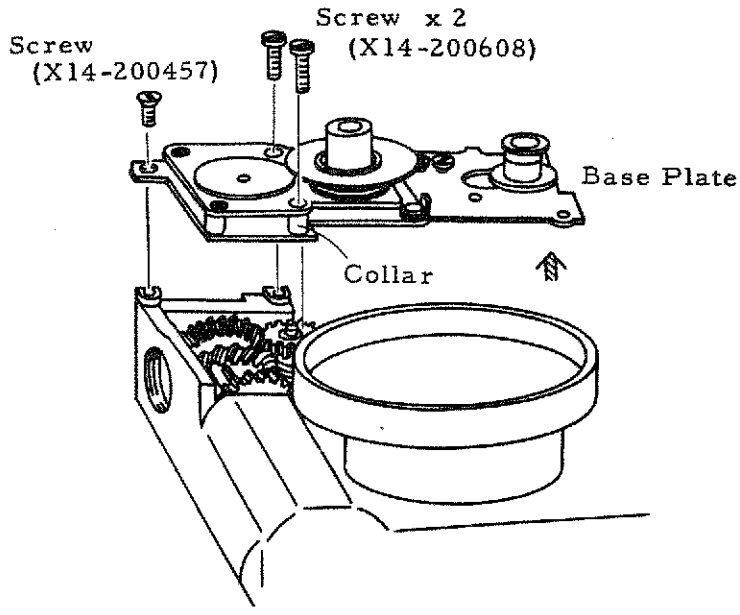


Fig. 3

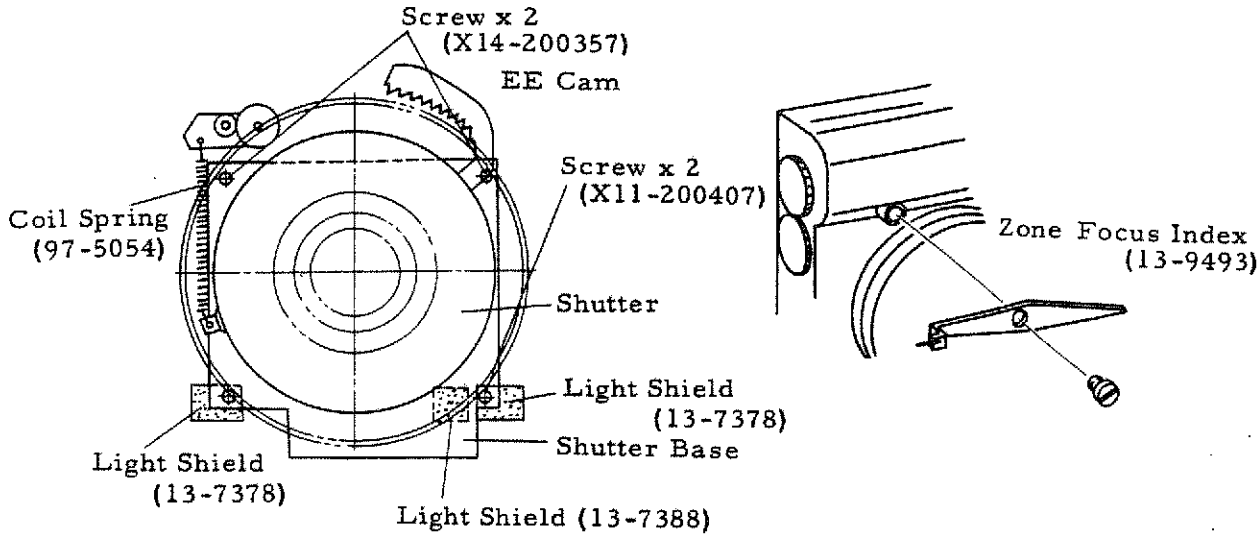
		ORDER	NOTES
1.	Removal of manual boss	Turn the manual shaft inside the manual boss (13-7227) and remove the manual boss. The manual boss can be removed without pulling out the manual shaft from inside the manual boss. (Refer to Fig. 1)	Be careful of the click spring and ball inside the manual shaft.
2.	Removal of clamp plate	Remove the clamp 13-7313	
3.	Removal of the screws	X11-200301 X14-200408	Refer to Fig. 3.
4.	Removal of CdS	Screw X11-200127	
5.	Removal of finder	Remove the coil spring of the zone focus needle and partly remove.	(1) There is a glued on portion in mid-circuit.

BASE PLATE DISASSEMBLING



		ORDER	NOTES
1.	Removal of screw	Pull out the 3 screws X14-200608 x 2 X14-200457	When removing the 2 screws (X14-200608 x 2) be careful not to drop the collar.
2.	Removal of base plate	Remove in the direction of the arrow. (Refer to above diagram)	Also be careful of the meter needle.

SHUTTER BASE DISASSEMBLING



		ORDER	NOTES
1.	Removal of zone focus index.	Screw 97-4057 Zone focus index 19-9493	Be careful not to bend the removed index.
		(Refer to Fig. 2)	
2.	Removal of screw	Remove upper part of coil spring 97-5054	Refer to above figure.
		Remove screw X14-200351	
		Move the EE cam 13-7209 to the left	
		Remove screw X11-200407	
		Remove light shield 13-7378 light shield 13-7388	
		Remove 2 screws X11-200407	
3.	Removal of shutter base		

SHUTTER DISASSEMBLING

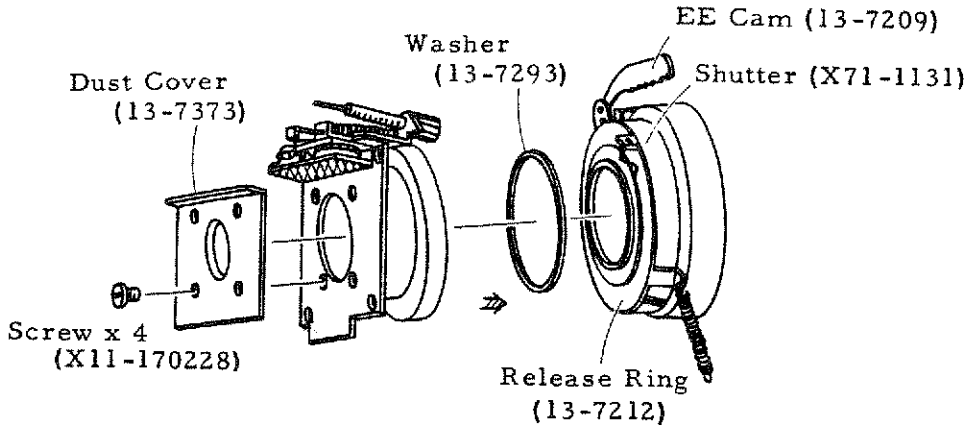


Fig. 1

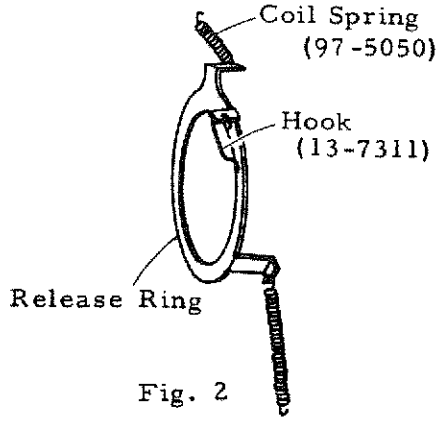
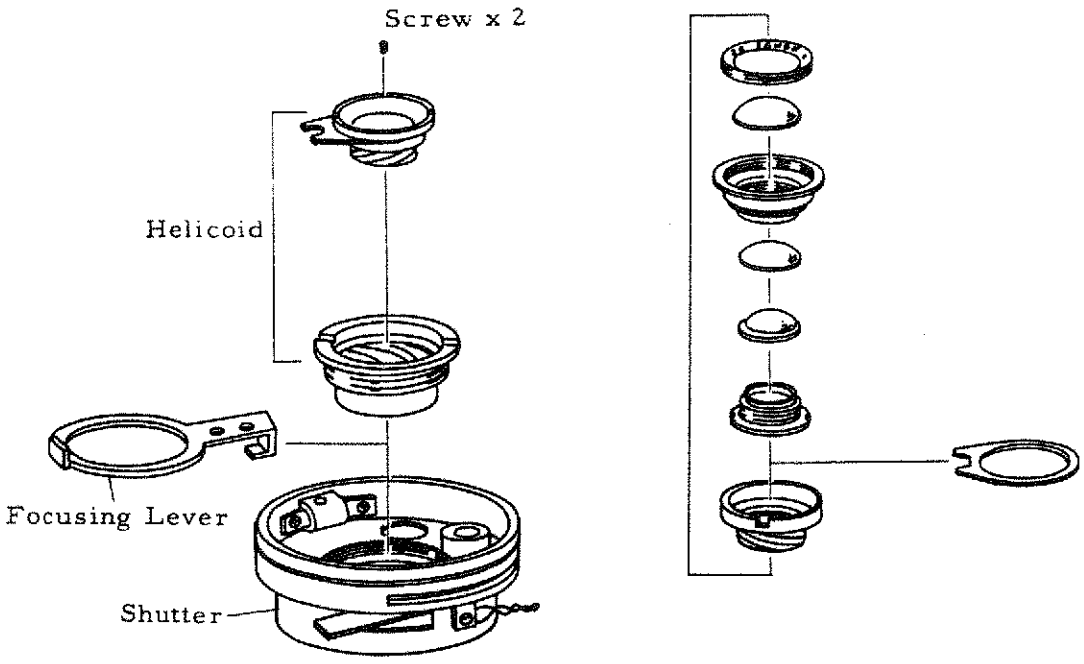


Fig. 2

	ORDER	NOTES
1. Removal of screw	Remove 4 screws X11-170223	
	Remove hook 13-7311	Remove coil spring 97-5050
	Remove shutter X71-1131	

LENS DISASSEMBLING



ORDER

NOTES

SHUTTER ADJUSTMENT

1. Method of disassembling

Refer to method of disassembling: Pages 4 - 11.

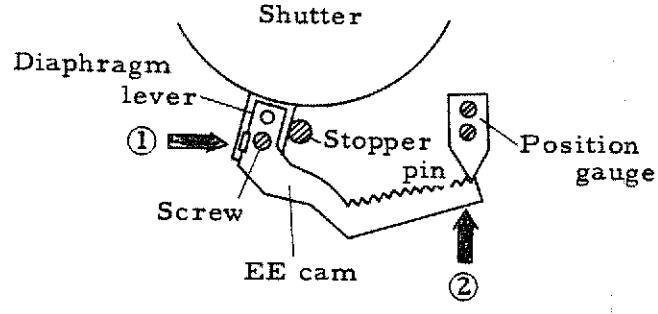
Note 1 : Dismantle the EE cam, coil spring, ASA, click stop screw and re-use.

2. Inspection of separate parts

1. Move diaphragm lever and observe movement of diaphragm.
2. Inspect the shutter charge as well as the release and rotating condition of the shutter dial.

3. Method of assembling

1. Installing the EE cam.



1.1 Push the diaphragm lever in the direction of the arrow (1) as shown in above diagram until one side of the diaphragm lever touches the stopper pin.

1.2 Then, from the direction of arrow (2) push the EE cam so that the tip of the position gauge will fit into the first teeth of the EE cam.

1.3 After tightening the screw, put on diabond.

2. Installing the shutter.

2.1 Fit the hook and coil spring to the release ring.

Note 1 : Apply shell grease* over the contact surface of the hook and the hole.
*Extreme-pressure lubricant + liquid molybdenum (AEROSHELL GREES 7A)
2 : Charge the shutter.
3 : Be careful of the hook lever as it easily becomes disconnected before it is attached to the shutter release lever.

2.2 Attaching to the shutter base.

Note 1 : Put diabond on screw after tightening.
2 : During installation, avoid touching the shutter blades and diaphragm blades.

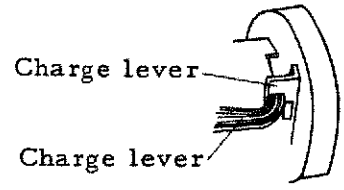
3. Install the ASA click and the hood.

3.1 Install the ASA click before fitting the lens.

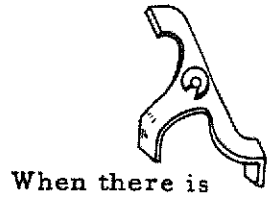
3.2 Affix hood with diabond.

4. Installing the lens section. See method of disassembling 11.

4. Methods of adjustment 1. Adjust the charge lever.
Adjust the overlap to more than 0.6mm in order to prevent the tip of the charge lever from becoming disconnected from the shutter charge lever during cocking.
When making adjustment, bend the charge lever.

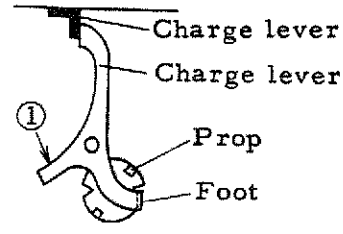


2. Leeway of charge.
There should be a charge leeway of 0.3 - 0.6mm at the tip of the lever after the shutter has been charged.



When there is no leeway ⟷ When there is a considerable leeway

3. Adjusting the timing.
3.1 Place the shutter in a charged condition.
3.2 Hold with the fingertip in the direction of the arrow (1) so that the tip of the charge lever will touch the set lever.



3.3 Next, while pressing the charge lever, counter rotate the sprocket and bring the prop of the sprocket into contact with the foot of the charge lever.

3.4 In this condition, the foot of the index lever should be within specifications as shown in the diagram below. In repairing, bend the foot after once removing the index lever.

Up to 1/2 of the plate thickness of lever from the rim of the notch.

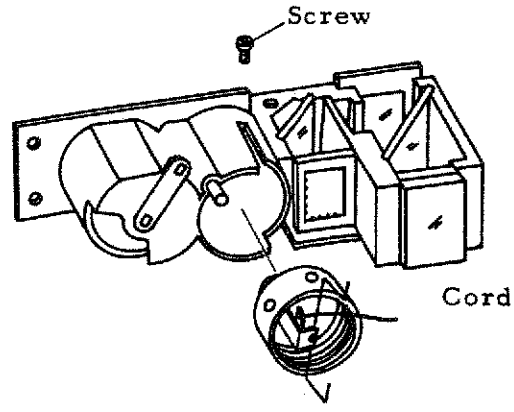
METER ADJUSTMENT

1. Method of disassembling

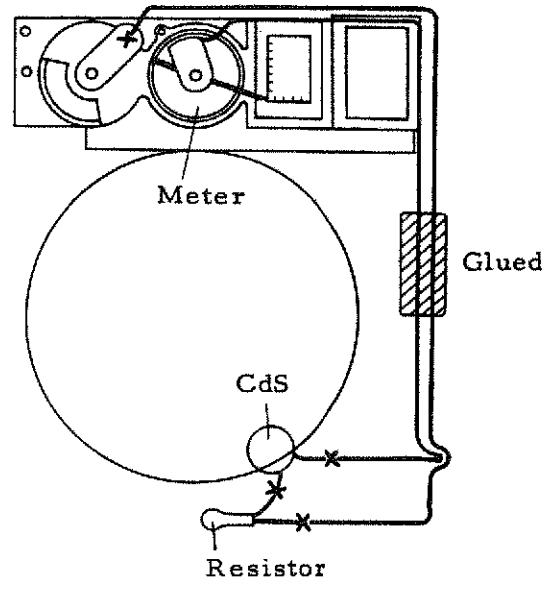
1. See methods of disassembling: Pages 4 - 7.
   Note 1: When replacing the meter, always replace the meter, resistor and CdS as a single set.
   2: In removing the meter, remove the screw and avoid touching the indicator of clamp needle.

2. Fitting the meter

1. Fitting.

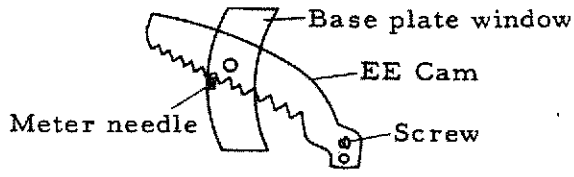


2. Wiring and soldering.



3. Meter adjustment

1. Adjusting the manual diaphragm.
   Step 1: Clamp the needle of the meter to the sixth groove of the EE cam. (A hole or a tiny sign has been inscribed at the sixth groove of the EE cam.)



2: On this occasion, use the gauge to measure the diameter of the diaphragm.

3: If it is not within the limits, loosen the screw of the EE cam, and adjust by moving the EE cam and changing the diameter of the diaphragm. During this process, the needle remains clamped to the sixth groove.

Note: Diametral value of diaphragm

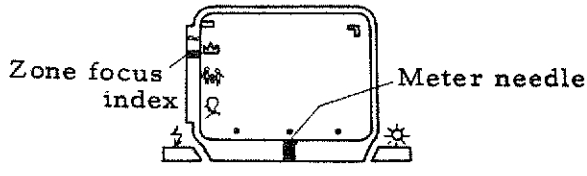
$D_1 > D > D_2$

F	2.8	4	8	16	22
D_1	6.95	4.96	2.49	1.36	1.04
D	6.42	4.48	2.20	1.13	0.82
D^2	5.89	4.06	1.92	0.89	0.68

4: Next, clamp a needle to the tip of the EE cam, and measure the 2.8 diameter of diaphragm.

2. Adjustment of the diaphragm indicator.

Step 1: When clamping the clamp needle to the sixth groove of the EE cam, adjust the indicator inside the finder.



2: The range of the needle should cover the index.

3. Adjusting the automatic exposure.

Step 1: Adjust shutter speed to 1/30 and ASA 100.

2: Apply light intensity of 343 cd/m^2.

3: Release shutter.
Measure the diameter of the lens aperture at F8. (Use limit gauge.)

4: Next, use light intensity of 2880 cd/m^2, with shutter at 1/250.

5: On this occasion, check the F8 diameter of the diaphragm.

6: If the measurement is outside the limit, make adjustments by putting a brush of India ink on the Cds or by wiping off the ink according to the condition.
When the diameter of the lens aperture is large ----- paint India ink.
When the diameter of the lens aperture is small ----- wipe off the ink.
Note: To either paint or wipe India ink is an adjustment method applied generally to all automatic repairs.

7: Next, adjust F2.8.

8: When the shutter is 1/30 and light intensity 42.9 cd/m^2 as well as when the shutter is 1/250 and light intensity at 360 cd/m^2, it should be within the limit of the limit gauge for, F2.8.

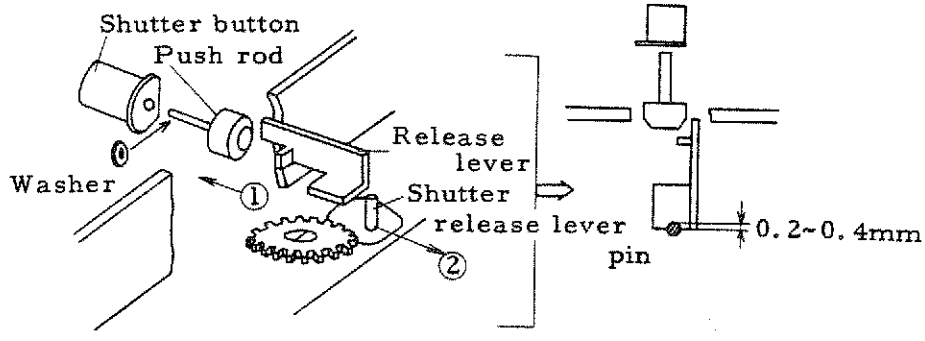
9: In case a defect arises in the balance of low light intensity and high light intensity, balance both the F2.8 and F8, and place within the limit. However, it should be within the limit of ± half of the lens aperture.

BASE PLATE ADJUSTMENT

1. Methods of disassembling
   1. See methods of disassembling: Pages 1 - 7.

2. Base plate unit
   1. Installing the stop claw.
      Note 1: The up and down play at the tip of the claw of the stop claw should be under 1 mm.
      2: In moving the stop claw, lightly move (before the spring is attached) the claw by its own weight only.
   2. Screw fittings and spring attachments.
      Note 1: After attaching the spring, re-examine the up and down play and movement.
      2: At this stage, it is easier to carry out the adjustment if the film counter dial and manual grip boss are not installed.
   3. Attaching the governor base.

3. Installing the main body
   1. Fitting in the push rod and release lever.
   2. Tightening the screws.
   3. Rotation and adjustment of the worm gear.
      Tighten screw and once the base plate has been fitted to the body case, observe the rotating condition of the worm gear and helical gear.
      Rotate spool slowly in the direction of winding the film to see if the gear rotates smoothly and without catching.
      If there is a hitch, adjust by slightly changing the set position of the base plate.
      Note 1: After the adjustment, apply Shell grease (extreme-pressure lubricant + liquid molybdenum).
   4. Fixing the release lever.



Press both the release lever and push rod to the side of the shutter button (indicated by arrow (1)). When the shutter release lever pin has been lightly pushed (with allowance for play) in the opposite direction (arrow (2)), insert a washer between the push rod and the shutter button to produce an overlap of 0.2 - 0.4mm of the pin and lever.

Note 1: Apply liquid molybdenum grease to the contact surface of the shutter release lever pin and release lever.

2: Put diabond on the screw of the base plate.

5. Check EE cam.

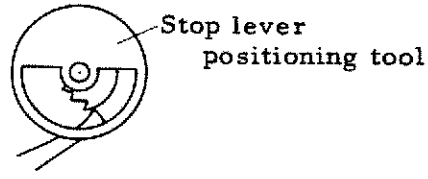
The EE cam should move smoothly without touching the base plate.

Note 1: The distance between the EE cam and the base plate should be 0.2 - 0.5mm.

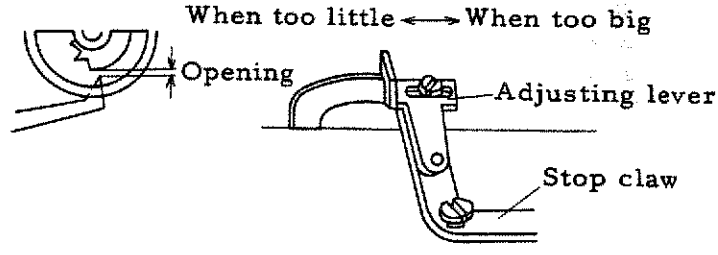
4. Adjusting the stop lever

1. Adjusting the position of the stop lever.

1.1 Rotate the sprocket, and adjust the position of the stop lever as shown in the diagram below during the shutter charge.



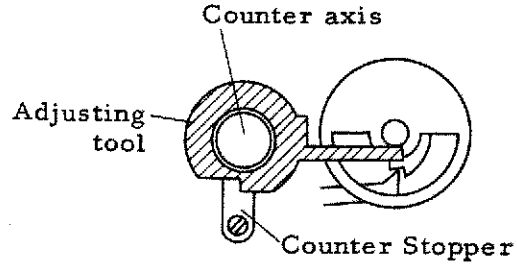
In making corrections, move the adjusting lever in the direction of the arrows, depending on whether opening is either too little or too big, as shown in the diagram below.



5. Fitting and adjusting the film counter dial and counter stopper

1. Fitting and adjustment.

When fitting the counter stopper, use adjusting tool and set according to the diagram below with assembling screws.

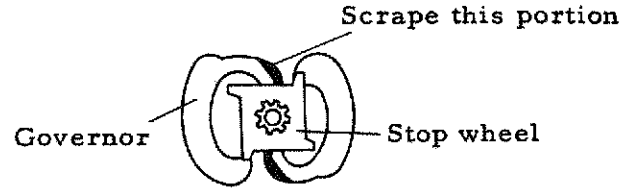


6. Installation and inspection of governor

1. Installation and inspection.
   1.1 Place governor in governor drum, and by rotating it lightly with the fingertip check whether it rotates smoothly and without any catch.
   1.2 Attach to governor base, release the stop lever and rotate the spool. Confirm the unobstructed movement of the worm gear, helical gear and governor.

7. Adjust rotating speed of governor

1. Attach spring, inspect and adjust when fully charged. When it is fully charged and the Rewind button (R) is pressed, the movement will continue 3 - 5 seconds. Therefore, if the time is less than 3 seconds, adjust by scraping the arm section of the governor as shown in the diagram below.

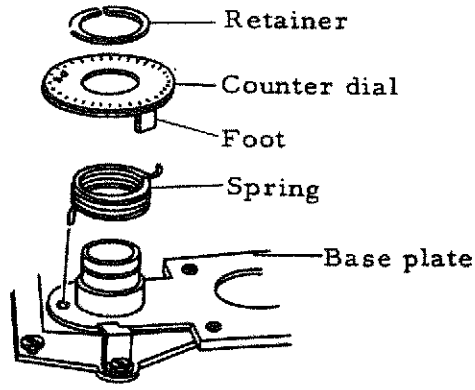


If the time is longer than 5 seconds, replace the governor.

FILM COUNTER ADJUSTMENT

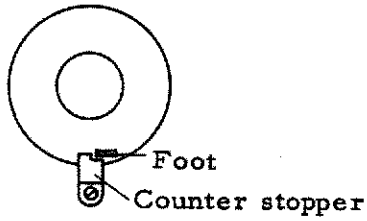
1. Methods of disassembling

See methods of disassembling: Pages 1 - 4.

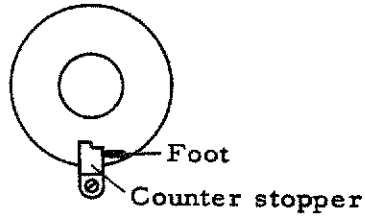


2. Methods of installing

1. Attach a spring to the foot of the film counter dial, and set after making one winding revolution to the left.



In S position



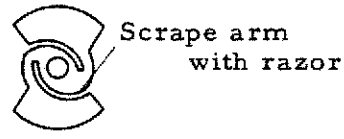
In O position
(Counter stopper moves)

Note 1: When making three to six rotations of the sprocket, check whether the auto stopper is moving. However, do not forget to press the projection at the side of the film rail surface for counter return.

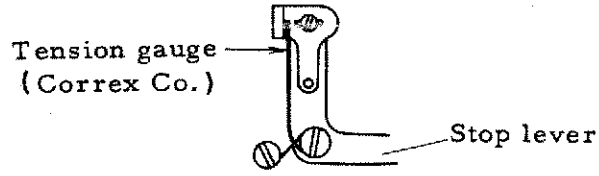
WINDING

1. Two-frame advance

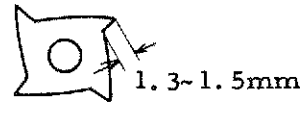
1. In case speed of revolving governor is fast.
Clean inner surface of the governor drum, observing change after applying a small quantity of launa oil on the governor axis. (When grip is fully charged the revolution is 3-5 seconds.)
If the speed is still too fast, reduce the speed scraping arm of governor, as shown in the diagram.



2. In case of imperfect movement of the stop lever.
Remove spring of stop lever to see whether the lever itself moves unobstructed and lightly.
   2.1 Should the lever be misshapen, fix it so that it will be parallel with the base plate.
   2.2 If the lever has a burr due to press, lightly remove the burr.
   2.3 If after setting, the up and down play of the lever is inadequate, ensure a play of between 1m/m - 1.5 m/m with the tip of the lever.
3. Strength of the left spring.
Make the measurement in the position as shown in the following diagram. See that it is within 30 - 50g.

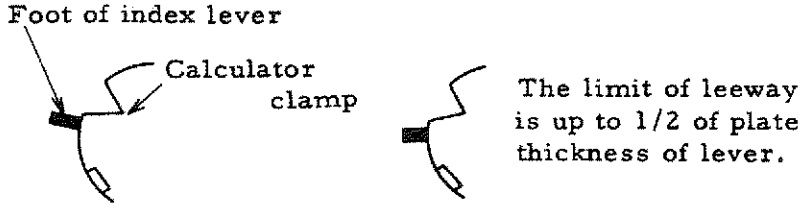


In case it does not conform to standard, change spring.
Note: Avoid bending, as much as possible.
4. In case of a misshaped stop wheel.
Tip section of the stop wheel should not be worn out or damaged.

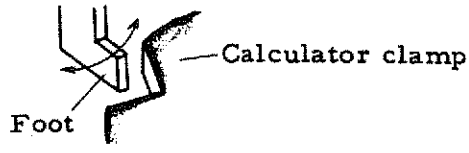


The proper thing to do is to make a new replacement of the defective stop wheel.
Note 1: Check the governor speed of 3-5 seconds.
2: Check position of stop lever.
5. In case the timing of the index lever is fast.
See paragraph on shutter replacement and adjustment.
For adjustment, check the method described in the process standard (shutter adjustment method). It

should be within the scope shown in the diagram below.
Note 1: Check the reverse side and two places.



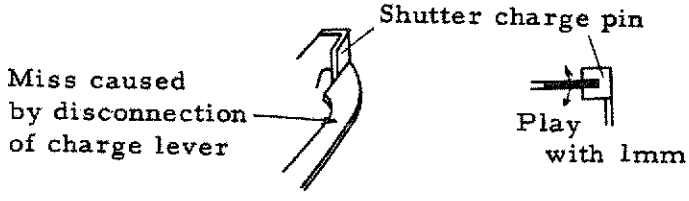
It is common for two-frame advance to occur when timing is fast.
As a method of later adjustment, adjust by bending the foot of the index lever as shown in the diagram below.



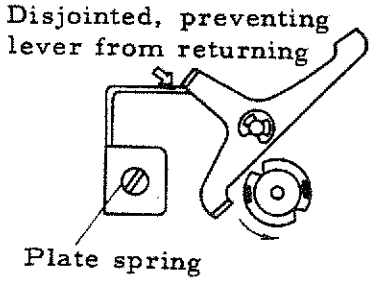
6. Precision of the calculator clamp.
Examine at 5 the cut groove of the calculator clamp in two places, seeing that both are within specifications.
Exchange with one of high precision.

2. Continuous advance

1. Insufficient pressure of pressure plate.
Replacement of pressure plate.
2. Incorrect positioning of tip of charge lever.



Although the charge lever tip has a play up and down of 1m/m, in either case correct the defect by bending the charge lever so that the shutter charge pin will not become disconnected.
3. Defective plate spring.

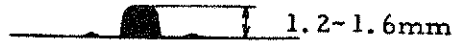


As the calculator clamp races charge is not possible, resulting in continuous advance.

Note 1: The up and down play of the charge lever should be within specifications.

2: The spring should be properly installed.
3: If the spring is misshaped, make replacement.

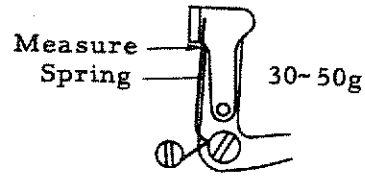
4. Inadequate amount of sprocket lobe.



The amount of sprocket lobe should be within 1.2-1.6 m/m. The set position of the sprocket base plate should be set towards the direction of the sprocket's protrusion.
Note 1: Readjust timing of index lever.

3. Winder failing to function after shutter has been pressed

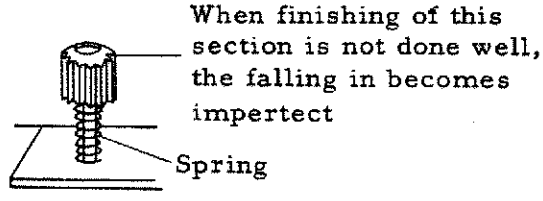
1. When stop lever spring is too strong.



Following the shutter's release and the shutter button's return, when the stop claw has been completely disconnected from the stop wheel owing to the power of the shutter charge pin.
Either replace the spring, or adjust between 30-50g.
If after fixing it does not move, either the shutter requires changing or the stop claw's motion is imperfect.

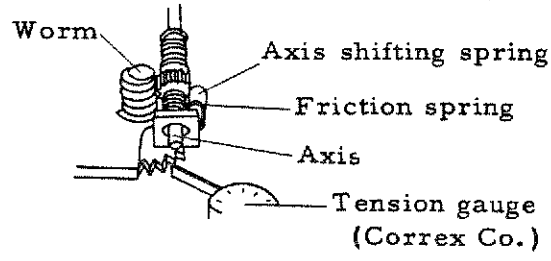
4. When there is a large amount of empty advances

1. In case there is burr on the upper section of the counter clutch gear.
The upper sliding surface of the clutch gear should be polished and the spring should be functioning faultlessly.



Note 1: In case the spring shown in the above diagram is weak, this also causes deterioration in the falling-in.
Either replace, or strengthen the spring

2. In case the axis shifting spring is not functioning properly.



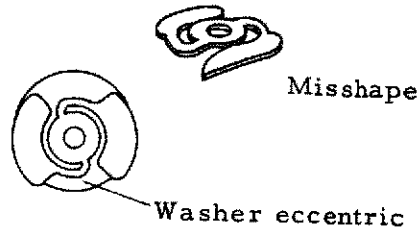
When the friction gear axis is not working, when the axis shifting spring is weak, this phenomenon is the result. In repairing, remove axis once and strengthen the spring.

Note 1: The friction of the revolution should be below 40g. (Measure with tension gauge (Correx Co.))

3. The friction gear is weak.
Replace the friction spring.

5. Unusual sound during the winding

1. Governor and washer out of shape.
Replace governor.

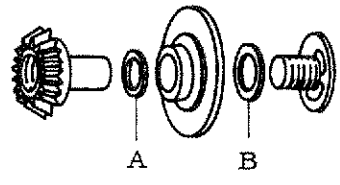


2. Maladjustment of stop lever.
Strange sound is emitted when the stop lever has not completely escaped from the stop wheel after the shutter has been pressed and the button released. Use the gauge for positioning of stop lever and make readjustment.

3. Deformity of counter stopper.
Use gauge for selecting position of counter stopper to make readjustments.

6. Although the grip has been coiled, winding is not possible

1. Bite of grip is poor.
Remove grip, and if the spool rotates unobstructedly, the grip is defective.



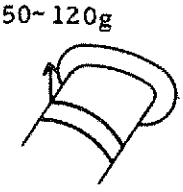
Replace washer A, as shown in diagram above, with a thin one, making the bite shallow. However, since the grip becomes unsteady, adjust by making the washer B thick.

2. Poor rotation of worm gear.
Remove grip, and if, when rotating spool, there is a catch, the rotation of the worm is defective.
See work rotation adjustment paragraph "base plate replacement and adjustment".

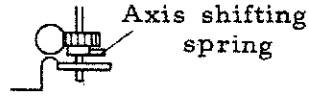
REWINDING

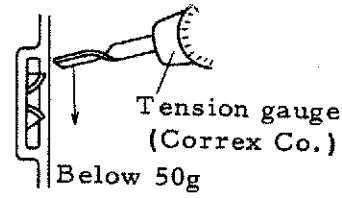
1. When rewinding the grip is charged

1. In case the cartridge is defective.
The defect occurs when the process of extracting the film is unnecessarily heavy, caused by misshaped or worn out cartridge.
2. Heavy spool friction.



Under the conditions of the above diagram, the spool friction should be within 50-120g, and irregularity within specifications.
In case of heaviness, press the spool downwards and weaken the friction washer by bending it.
3. When the movement of the gear train is heavy.
In case the gear is stuck to the body case, prevent this with a washer and oil.
Note 1: Remove grip, and when the counter winder fork is lightly rotated with the finger it should move lightly and unobstructedly.
4. In case the axis shifting spring is strong.
While pressing R-button, measure the rotating torque of the sprocket with the tension gauge. The scale should be below 50g.
In case of heaviness, weaken the axis shifting spring.



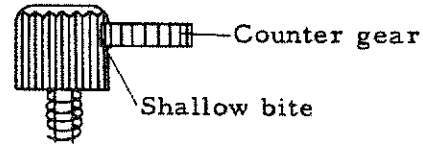


5. Defective grip.
Replace

FILM COUNTER

1. Film counter failing to advance.

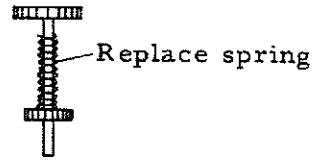
1. In case the bite of the clutch gear is shallow.



When both gears have been assembled in the direction of escape, as shown in above diagram, bend and assemble the clutch gear bearing so that it will not become

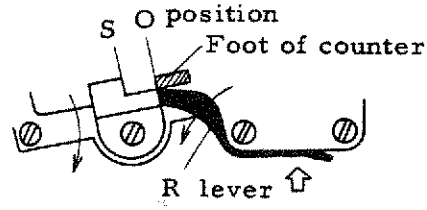
disconnected.

2. Weak friction gear.
   Use a dummy case to advance the film. See that the film counter accurately indicates the number of films advanced.



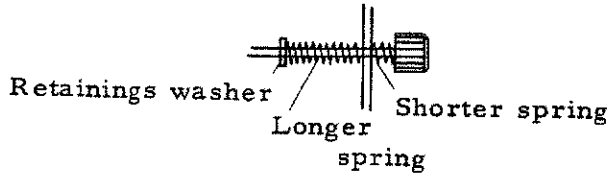
2. When the film counter fails to return to S

1. Inadequate movement of R lever.
   Open the back cover, and when the shutter is released, if the counter returns from 0 to S, the cause of the defect is the R lever.
   Raise by bending the R lever.

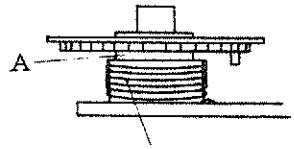


3. Failing to return even after opening back cover.

1. Clutch gear does not return.
   1.1 In case, although the return pin has reverted, the clutch gear has failed to return.
   Replace bottom (longer) spring (strengthen).
   1.2 In case the return pin catches and does not make a complete return.
   The retaining washer used as a spring stop is touching the body case.
   Free by scraping the body case.



2. Film counter in contact with other parts.
   2.1 When in touch with the governor drum.
   Free by scraping the foot of the counter gear.
   2.2 When in touch with the shutter.
   Free by changing the set position of the governor plate.
   Note 1: Readjust the rotation of the governor, position of stop claw and counter position at 0.
3. Defective return spring.



Spring cuts into groove A
and is unable to move

If the return is faulty, although the film counter not in contact with any other part, the cause is the spring's adherence.
Replace spring.
Note 1: Do not stretch spring and use.

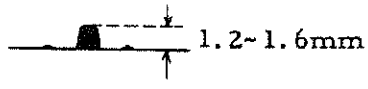
4. When the 0 position of the film counter does not fit

1. Defective position of counter stopper.
Readjust counter stopper position with appropriate pulling tool.
Refer to paragraph on installation and adjustment of counter stopper contained in the section on "replacement and adjustment of base plate."

SHUTTER

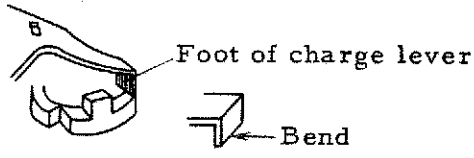
1. When shutter cannot be charged

1. Insufficient protrusion of sprocket.



Set the set position of the sprocket plate in the direction in which the sprocket protrudes.
Note 1: Readjust the timing of the index lever.

2. Insufficient charge lever stroke.



Lengthen the stroke by bending the foot of the charge lever inwards.
Note 1: The scope of leeway after charge should be within 0.3~0.6.

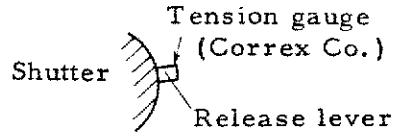
3. Defective index timing.
Refer to section on method of adjusting timing, "shutter replacement and adjustment."

4. Weak pressure plate.
Strengthen the pressure plate.

2. Heavy shutter pressure

1. When the release ring movement is heavy.
Remove release ring, clean and improve movement by applying liquid molybdenum grease.

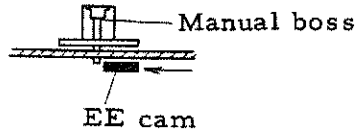
2. Heavy shutter release.



Measure the tip of the release lever with the tension gauge (Correx Co.).
The scale should be below 50g.
Replace shutter if it is over 50g.

3. Failure of shutter to return

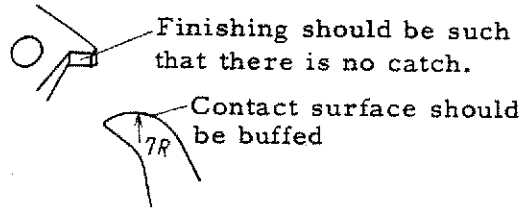
1. Hitch in the movement of the EE cam.



Loosen the manual boss without the button being returned. If the cam returns, it means that the set of the manual is too long. If such is the case, remove the manual boss and scrape the screw.

4. When shutter button cannot be pressed on account of occasional catches.

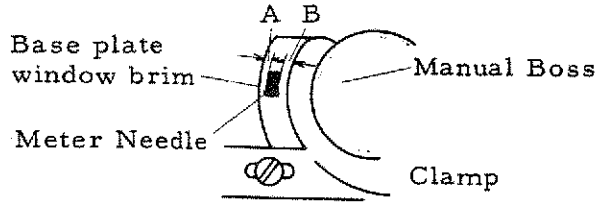
1. Defective shape of stop wheel and stop lever.
It is usually satisfactory when the contact surface of the stop claw and the stop wheel has been buffed.
However, there are some that are rough, in which case both parts should either be replaced or repolished.



METER

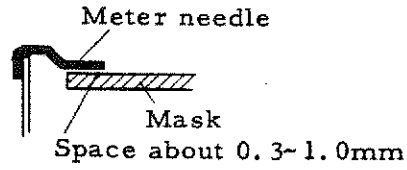
1. Meter indicator hitch

1. In case it is touching the base plate window brim or the clamp plate.



The space (A and B) between the needle and the base plate window brim or clamp plate brim should be within 0.3-1.0. When it is outside the limit, it is apt to touch the brim.
Adjust by bending the indicator.

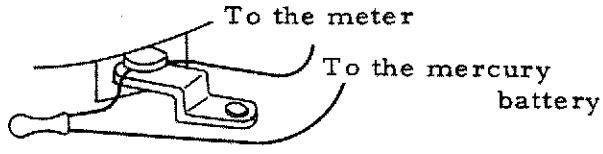
2. In case it is in contact with the frame glass.



1) Adjust in the same way by bending the indicator.
Note 1: For both 1 and 2, check the manually operated lens at 2.8, 8 and 16.

2. Faulty meter movement

1. In case there is a short circuit near the CdS.



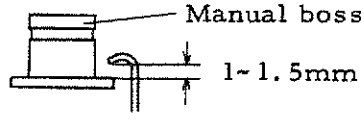
Although the place near the CdS and resistance is bare wired, if it is grounded to the body the meter will not move.
After inspection, repair so that it will not ground.

2. Faulty contact of the mercury battery.
Wipe the (-) pole of the mercury battery, also wipe and clean both the (+) (-) of the mercury battery itself.

3. In case the wiring is disconnected.
Repair the disconnected section, either by soldering or by replacing.

3. The manual indicator fails to move

1. In case the holder of the indicator is loose.



As shown in the above diagram, adjust so that the distance between the tip of the indicator and the rim of the manual boss is 1-1.5m/m.

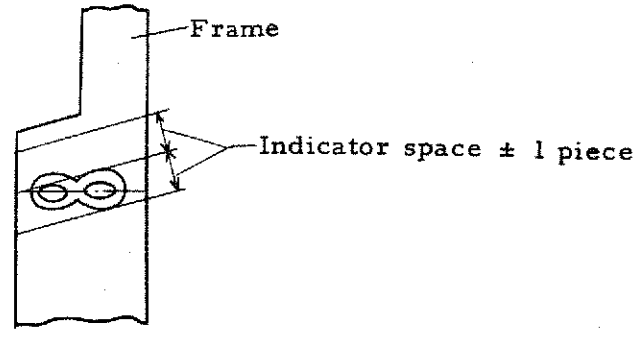
2. Defective manual boss click.
Click should work moderately well. It should not move despite a slight up and down movement of the knob. In case of defect, replace the manual boss.

4. Over or under-exposure

1. Faulty adjustment.
See section on meter replacement and adjustment.

INSPECTION STANDARDS

1.	External appearance	Without explicit request from the customer, it is not necessary to make any replacement because of unattended scratch, soil or stain. However, in case of an exchange, select one which does not readily show scratches or spots.
2.	Condition of assembly	
2.1	Disparity at joint section of back cover and front plate	Under 0.2mm.
2.2	Play of hinged section	Under 0.3mm.
2.3	Shutter ring rotating torque	150-250gr/cm. Click in working condition.
2.4	Pull of rangefinder lever	Should move smoothly.
2.5	Pull of film sensitivity ring	Should move smoothly.
2.6	Pull of manual knob	Should move smoothly.
3.	Finder section	
3.1	Visibility	-1 ± 0.5 diopter.
3.2	Visual field	Vertically and horizontally: 90 ± 3%.
3.3	Parallax	Vertically: 3%;horizontally: under 4%.
3.4	Image break	The range of vision and mask image should not be too heavily broken.
3.5	Coincidence precision of zone focus index	With the position of the range lever at infinity, the coincidence degree of the indicator and infinity mark inside the finder should be ± the width of a needle against the central line (see diagram).

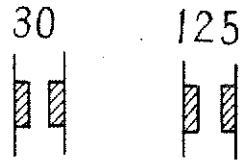


4.	Spring motor	
4.1	Generating torque	When pressing the R button and winding the grip 3 to 10 times, the return torque should be 0.8-1.8 kg/cm.
4.2	Slip torque	After winding up fully, the slip should occur at 2.5-3.5 kg/cm.
4.3	Number of winding up	Slip should occur after more than 10 times.
5.	Winding up the film	
5.1	Winding up capacity	When the spring motor has been fully wound, more than 20 frames of the black and white film contained in a 35mm cartridge.

5.2	Speed of wind-up	After winding up in full, it should be possible to release the shutter for over three frames within 2 seconds with a high speed shutter (1/125 or 1/250).
5.3	Spacing of film	It should be possible to photograph over 72 frames without any overlapping.

6. Shutter

6.1	Second timing	± 40% for each speed.
6.2	Button stroke	Under 4mm.
6.3	Pushing pressure	400-800g.
6.4	Safety system	The shutter button should not fall off during the winding of the film.
6.5	Position of shutter click	There should be an index between the letterings (see diagram).



60.250 also conform to this.

7. Flash

7.1	Socket	
7.2	Insulation resistance	Over 10MΩ with a DC 500V insulation resistance meter.
7.3	Contact efficiency	Over 70% against 1 ms, within the scope of the electric light mark.
7.4	Circuit resistance	Under 1Ω for 6V 2A.
7.5	Time lag	Before fully opening, switch in at 0.5 ± 0.5 ms.

8. Rewind

8.1	Pushing pressure of button	Under 2.5 kg when fully charged.

9. Film counter dial

9.1	Automatic advance	Insert film and close the back cover. When the grip is wound from S, the frame should advance 0 ± 1 frame and then stop.
9.2	Advance	One frame at a time should advance as each photograph is taken.
9.3	Return	Against the number of frames returned, the difference of the return quantity on the counter should be ± 1 on the scale. When the back cover is opened, the counter reading returns to S.
9.4	Coincidence precision of indicator and scale unloading	For each scale, a ± 1 scale.

10. Film loading; unloading; and advance

10.1	Loading and unloading	Load and unload the 36-frame black and white 35mm Fuji or Kodak film with cartridge. There should be no difficulty in operating the film.
10.2	Scratch from film advance	There should be no scratch resulting from winding or counter winding of the film.

11. Back cover

11.1 Opening and closing	When the back cover is closed the stop claw should work, and it should not open when the knob for opening and closing has not been operated.
11.2 Bite	Under 0.5mm.
11.3 Parallel degree of opening between back and front covers	Opening 0.5mm, parallel degree under 0.2mm.

12. Exposure setting device

12.1 Lens aperture value	$\frac{B.S.T.}{A^2} = 20\ ^{+20}_{-10}$ (± 1 stop)

13. Manual diaphragm

The difference of the diaphragm value of the photographic lens and the value inside the finder is under 1/2F. When pull out the manual knob, the lens aperture should work manually. When pressing the knob, it should work automatically without any catch or stick.

14. Photographic lens

14.1 Focus	For standard lens: ± 0.03mm.

CANON REPAIR MANUAL

CANON DIAL 35-2
(REF. NO. 1-45421)

CANON CAMERA CO., INC.
TOKYO, JAPAN

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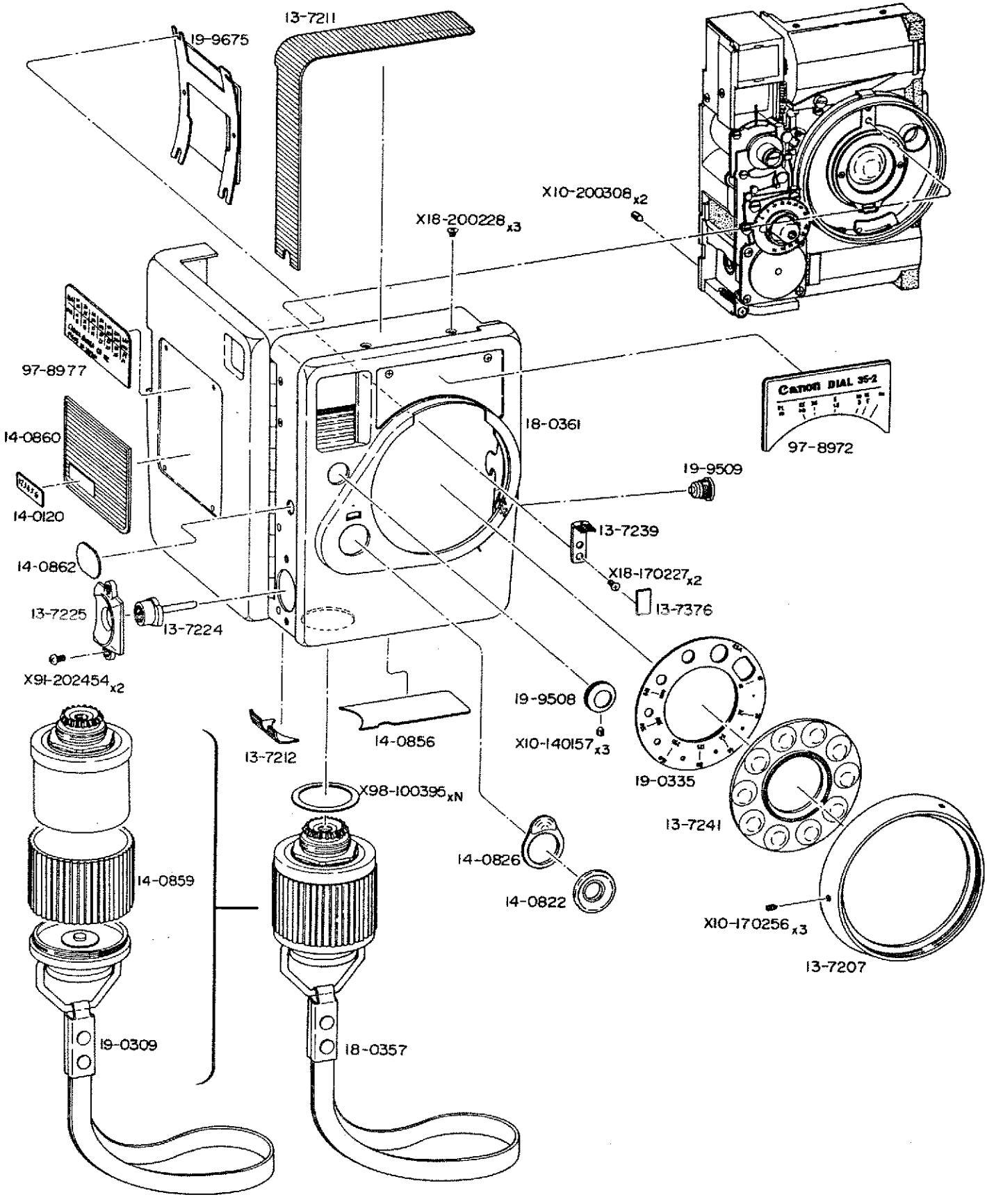
of

CANON DIAL 35-2



SCALE 1-1.5

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PARTS LIST

CASING & WINDING GRIP

13-7207	Shutter Ring
13-7211	Leather
13-7212	Leather
13-7224	Rewind Button
13-7225	Rewind Button Frame
13-7239	Focusing Knob
13-7241	Multiple Lens
13-7376	Cover
14-0120	Number Plate
14-0822	Shutter Button Ring
14-0826	Counter Window
14-0856	Leather
14-0859	Grip Rubber
14-0860	Leather
14-0862	Cover
18-0357	Winding Grip Unit
18-0361	Front & Back Cover Unit
19-0309	Wrist Strap
19-0335	Aperture Disk
19-9508	Manual Knob
19-9509	Flash Terminal
19-9675	Pressure Plate
97-8972	Name Plate
97-8977	ASA-DIN Guide Plate
X10-140157	Screw x 3
X10-170256	Screw x 3
X10-200308	Screw x 2
X18-170227	Screw x 2
X18-200228	Screw x 3
X91-202454	Screw x 2
X98-100395	Washer x N

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EXPLODED VIEW

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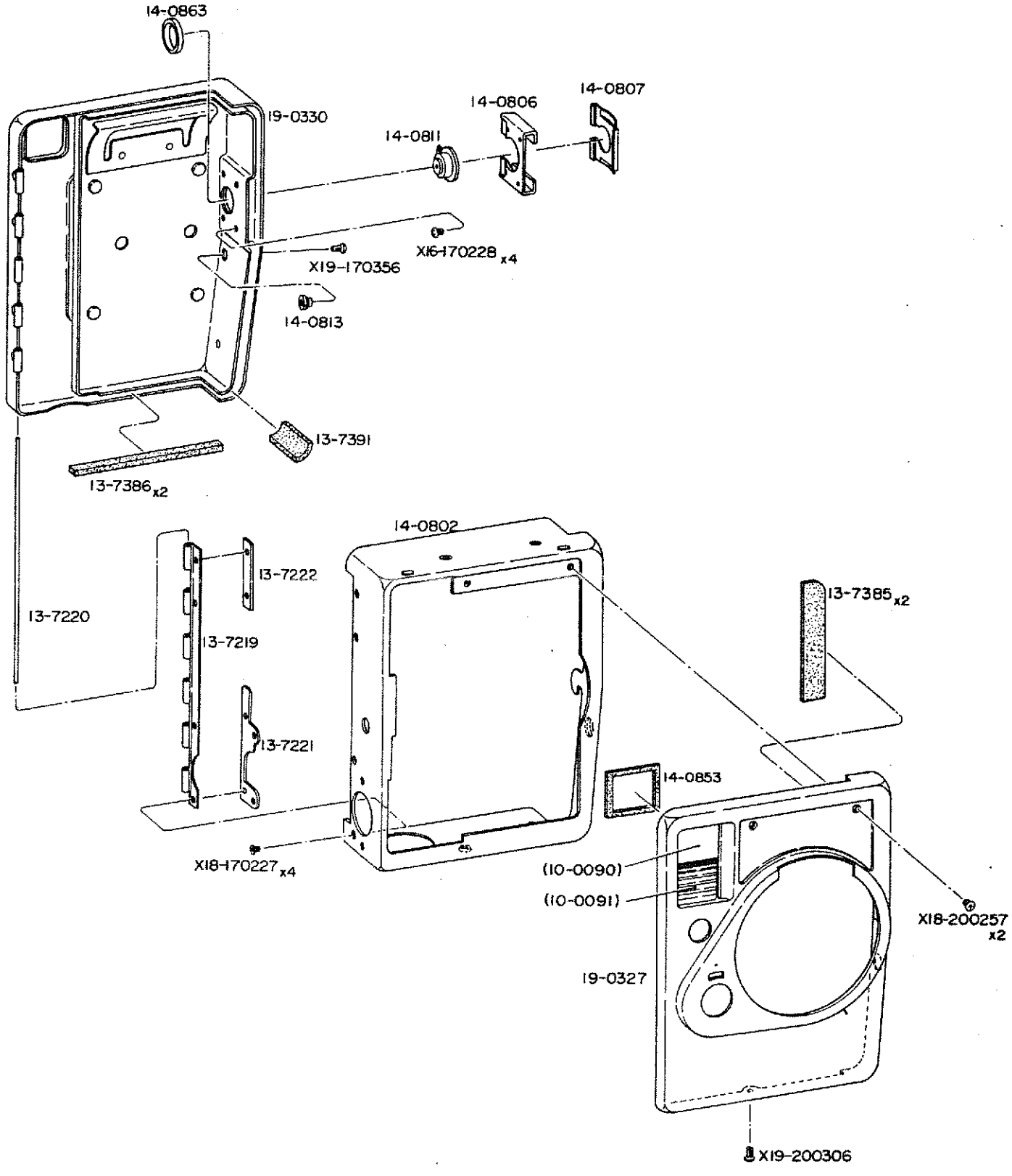

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PARTS LIST

CASING

10-0090	Front Glass
10-0091	Illuminating Window
13-7219	Hinge
13-7220	Shaft of Hinge
13-7221	Set Plate
13-7222	Set Plate
13-7385	Light Shield x 2
13-7386	Light Shield x 2
13-7391	Light Shield x 2
14-0802	Body Frame
14-0806	Accessory Shoe
14-0807	Accessory Shoe Cover
14-0811	Flash Terminal
14-0813	Eccentric Nut
14-0853	Light Shield
14-0863	Collar
19-0327	Front Cover
19-0330	Back Cover
X16-170228	Screw x 4
X18-170227	Screw x 4
X18-200257	Screw x 2
X19-170356	Screw
X19-200306	Screw

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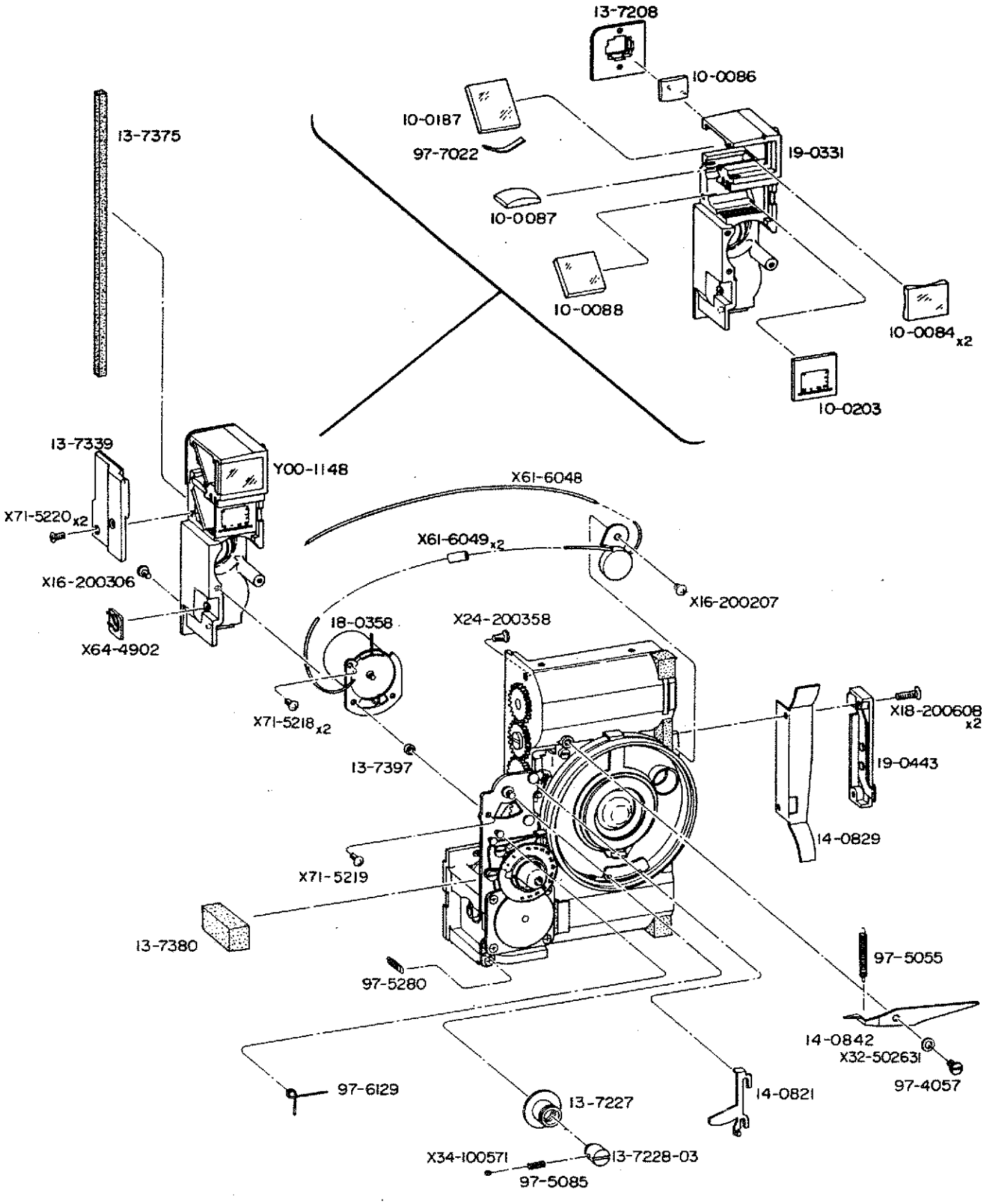

SCALE 1-1.5

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PARTS LIST

VIEWFINDER & EXPOSURE METER

Y00-1148	Viewfinder Unit
10-0084	Lens Element x 2
10-0086	Lens Element
10-0087	Lens Element
10-0088	Mirror
10-0187	Half-Mirror
10-0203	Finder Mask
13-7208	Eyepiece Frame
13-7227	Manual Boss
13-7228-03	Manual Shaft
13-7339	Finder Cover
13-7375	Light Shield
13-7380	Light Shield
13-7397	Spacer
14-0821	Clamp
14-0829	Light Shield
14-0842	Zone Focus Index
18-0358	Exposure Meter Unit
19-0331	Finder Base
19-0443	Flash Contact
97-4057	Screw
97-5055	Coil Spring
97-5085	Coil Spring
97-5280	Coil Spring
97-6129	Spring
97-7022	Plate Spring
X16-200207	Screw
X16-200306	Screw
X18-200608	Screw x 2
X24-200358	Screw
X32-502631	Washer
X34-100571	Steel Ball
X61-6048	Lead Wire
X61-6049	Insulation Tube x 2
X64-4902	Variable Resistor
X71-5218	Screw x 2
X71-5219	Screw
X71-5220	Screw x 2

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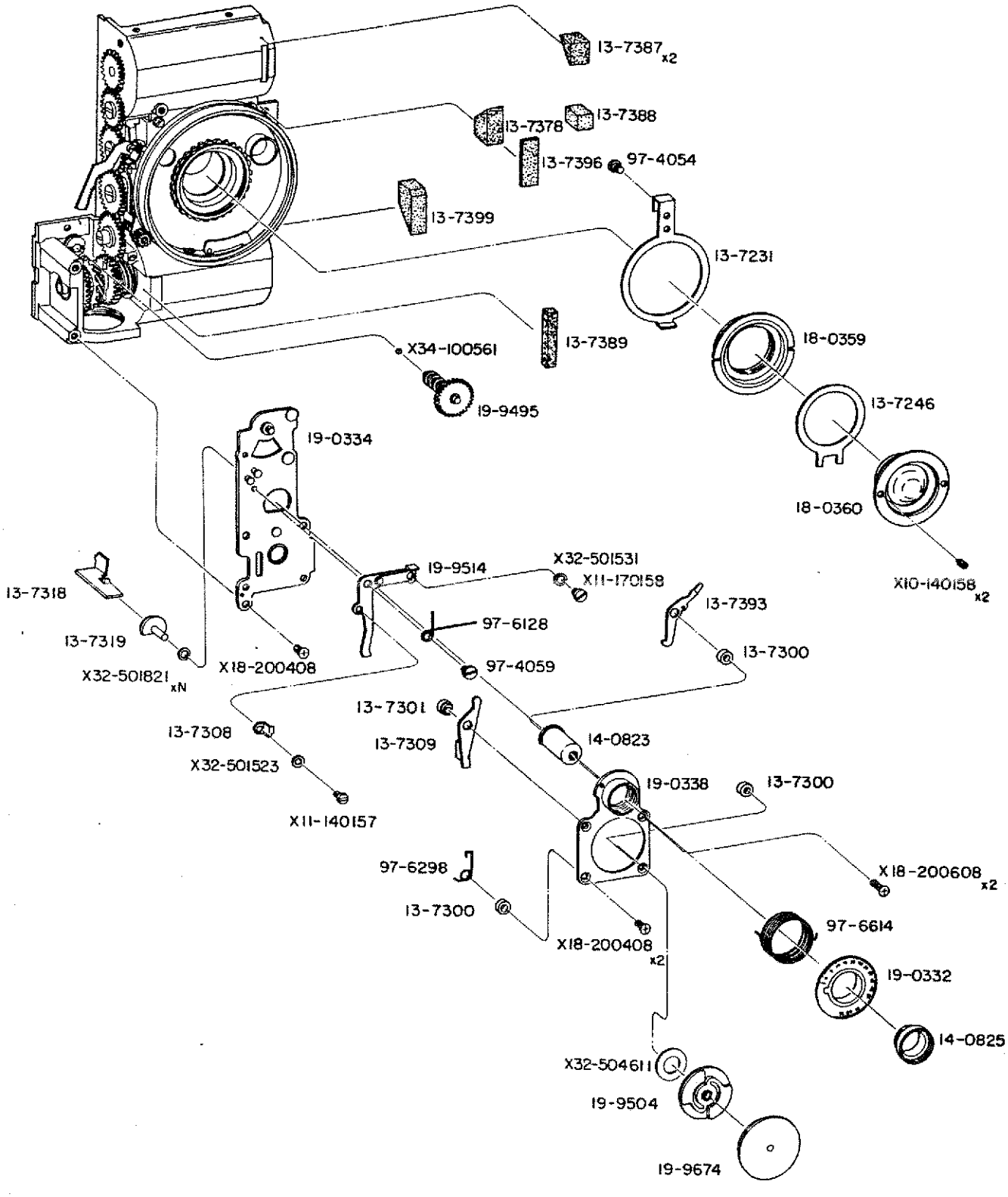

SCALE 1-1.5

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PARTS LIST

TAKING LENS, GOVERNOR & FILM COUNTER

13-7231	Focusing Lever
13-7246	Key
13-7300	Collar x 3
13-7301	Collar
13-7308	Counter Stopper
13-7309	Rewind Lever
13-7318	Release Lever
13-7319	Push Rod
13-7378	Light Shield
13-7387	Light Shield x 2
13-7388	Light Shield
13-7389	Light Shield
13-7393	Stopper
13-7396	Light Shield
13-7399	Light Shield
14-0823	Shutter Button
14-0825	Nut
18-0359	Helicoid Unit
18-0360	Taking Lens Unit
19-0332	Counter Dial
19-0334	Base Plate
19-0338	Governor Base
19-9495	Worm
19-9504	Governor
19-9514	Stop Lever
19-9674	Governor Drum
97-4054	Screw
97-4059	Screw
97-6128	Spring
97-6298	Spring
97-6614	Spring
X10-140158	Screw x 2
X11-140157	Screw
X11-170158	Screw
X18-200408	Screw x 3
X18-200608	Screw x 2
X32-501523	Washer
X32-501531	Washer
X32-501821	Washer x N
X32-504611	Washer x N
X34-100561	Steel Ball

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of

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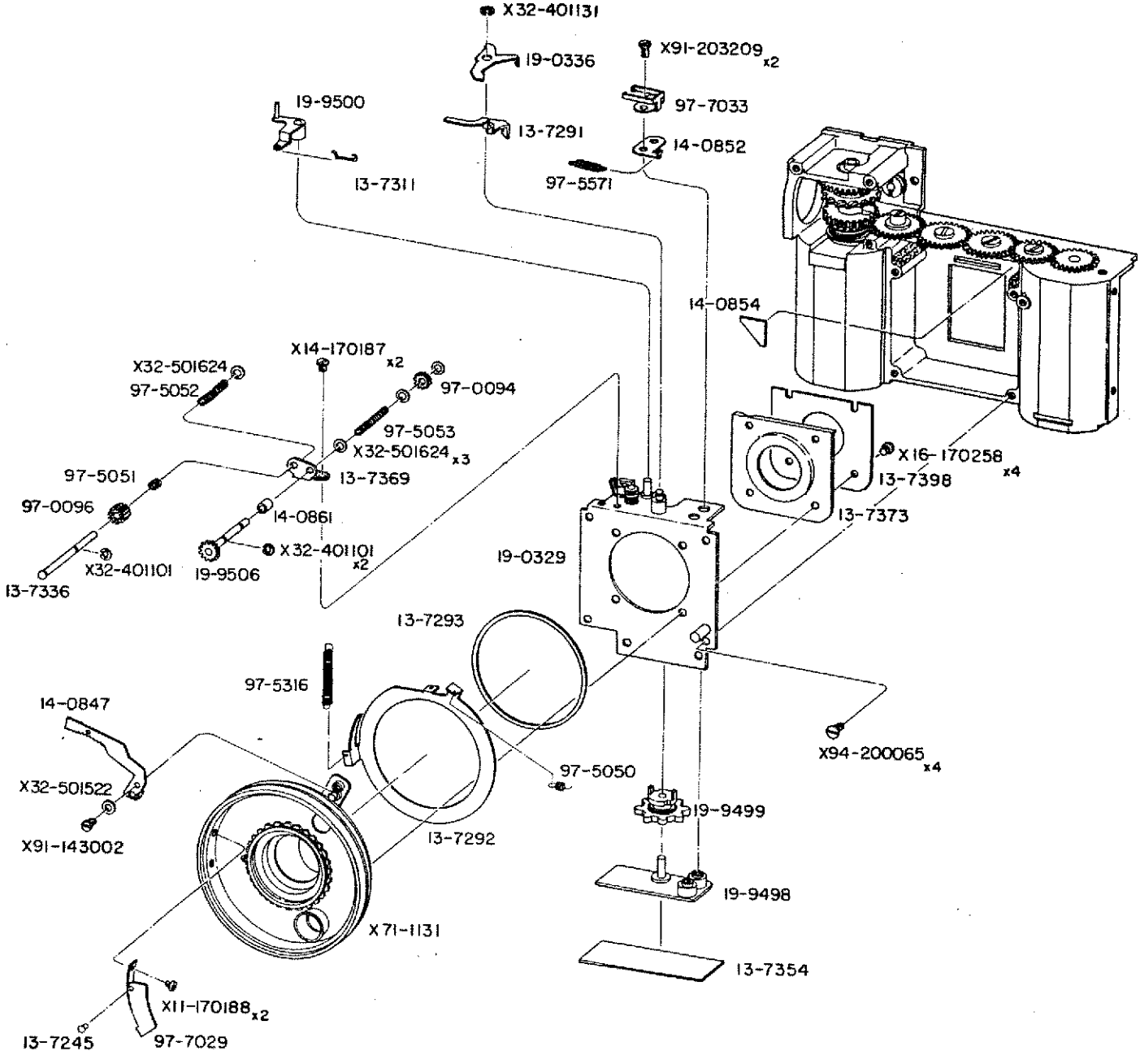

SCALE 1-1.5

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PARTS LIST

FILM COUNTER & SHUTTER

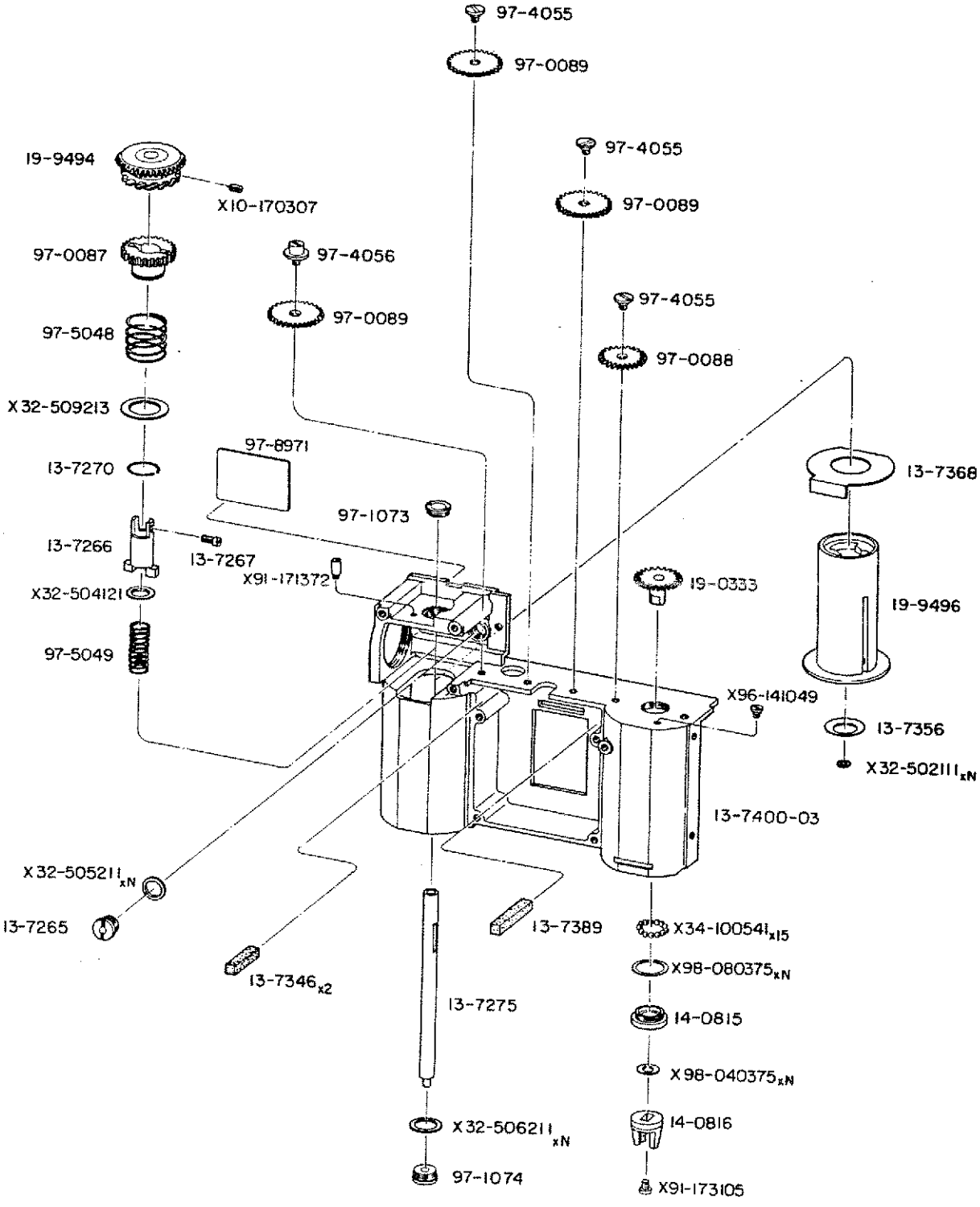
13-7245	Click Dowel
13-7291	Index Lever
13-7292	Release Ring
13-7293	Washer
13-7311	Hook
13-7336	Resetting Shaft
13-7354	Light Shield
13-7369	Bearing
13-7373	Dust Cover
13-7398	Light Shield
14-0847	EE Cam
14-0852	Spring Hanger
14-0854	Light Shield
14-0861	Collar
19-0329	Shutter Base
19-0336	Charge Lever
19-9498	Sprocket Base
19-9499	Sprocket
19-9500	Shutter Release Lever
19-9506	Counter Gear
97-0094	Idle Gear
97-0096	Pinion
97-5050	Coil Spring
97-5051	Coil Spring
97-5052	Coil Spring
97-5053	Coil Spring
97-5316	Coil Spring
97-5571	Coil Spring
97-7029	Click Spring
97-7033	Plate Spring
X11-170188	Screw x 2
X14-170187	Screw x 2
X16-170258	Screw x 4
X32-401101	Retaining Washer x 3
X32-401131	Retaining Washer
X32-501522	Washer
X32-501624	Washer x 4
* X71-1131	Shutter Unit
X91-143002	Screw
X91-203209	Screw x 2
X94-200065	Screw x 4

REF. NO. 1-45421

EXPLODED VIEW

of

CANON DIAL 35-2



SCALE 1-1.5

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PARTS LIST

WINDING GEAR, TAKE-UP SPOOL & BODY CASE

13-7265	Worm Bearing
13-7266	Clutch
13-7267	Screw
13-7270	Retainer
13-7275	Drive Shaft
13-7346	Light Shield x 2
13-7356	Spring Washer
13-7368	Light Shield
13-7389	Light Shield
13-7400-03	Body Case
14-0815	Rewind Fork Bearing
14-0816	Rewind Fork
19-0333	Rewind Gear
19-9494	Helical Gear
19-9496	Take-Up Spool
97-0087	Back Gear
97-0088	Idle Gear
97-0089	Idle Gear x 3
97-1073	Spool Bearing
97-1074	Drive Shaft Bearing
97-4055	Screw x 3
97-4056	Screw
97-5048	Coil Spring
97-5049	Coil Spring
97-8971	Battery Mark
X10-170307	Screw
X32-502111	Washer x N
X32-504121	Washer
X32-505211	Washer x N
X32-506211	Washer x N
X32-509213	Washer
X34-100541	Steel Ball x 15
X91-171372	Screw
X91-173105	Screw
X96-141049	Screw
X98-040375	Washer x N
X98-080375	Washer x N

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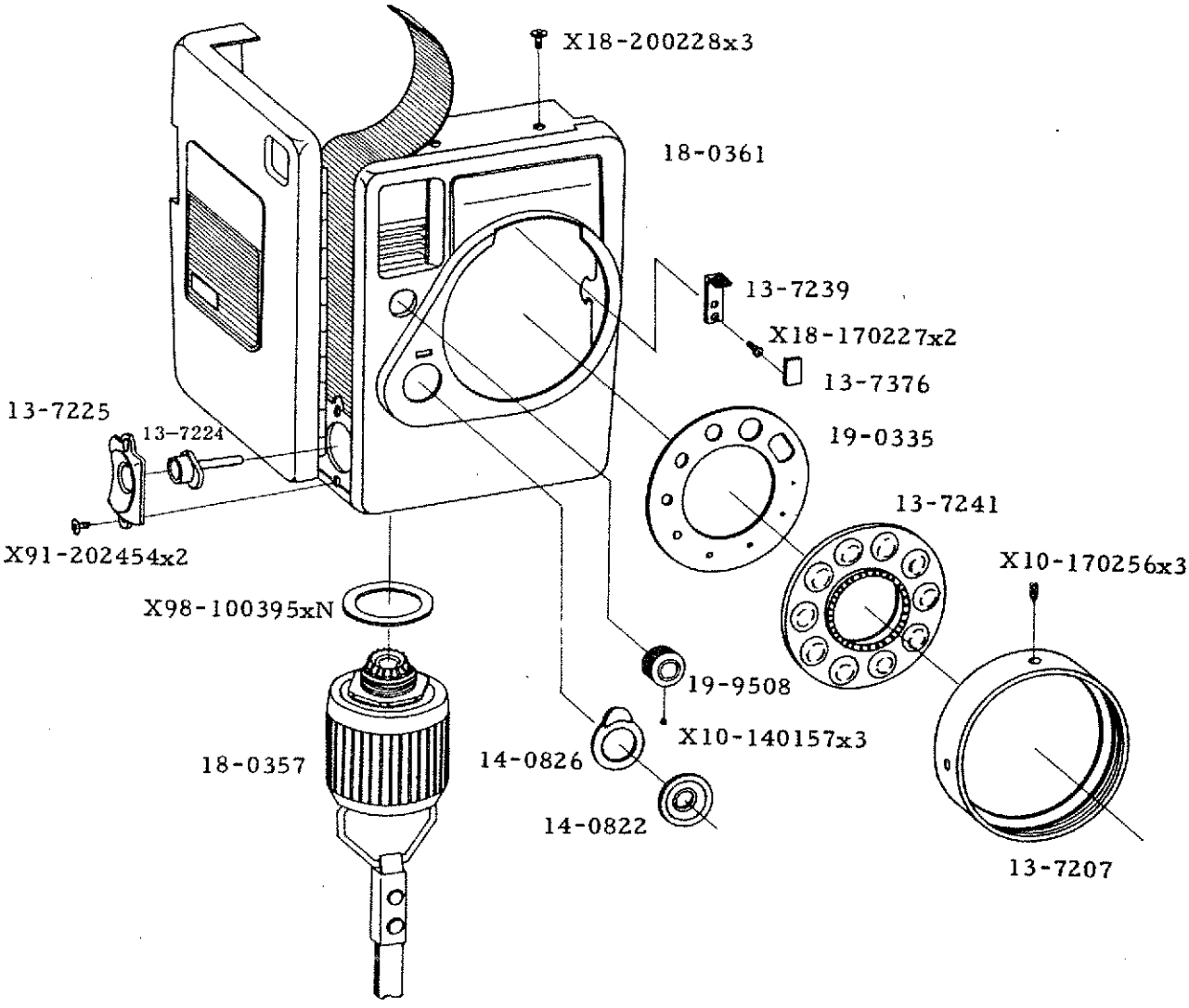
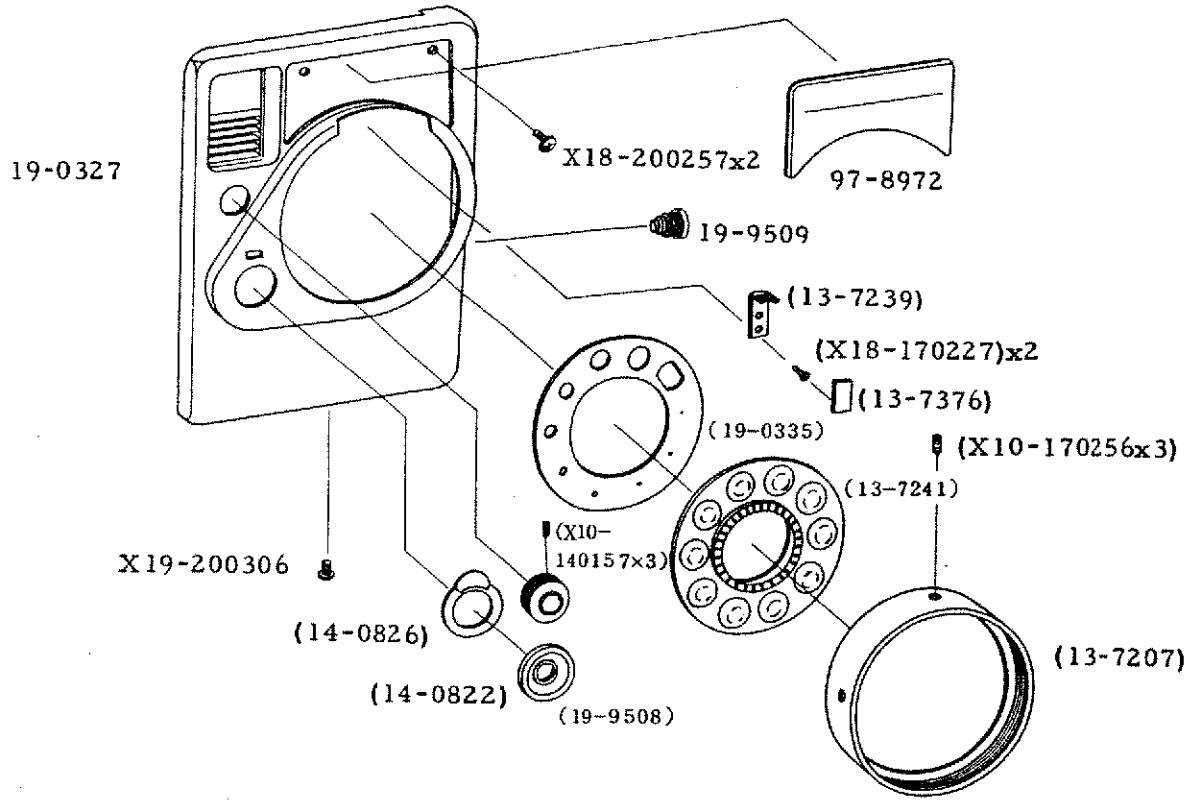
FRONT & BACK COVER DISASSEMBLING



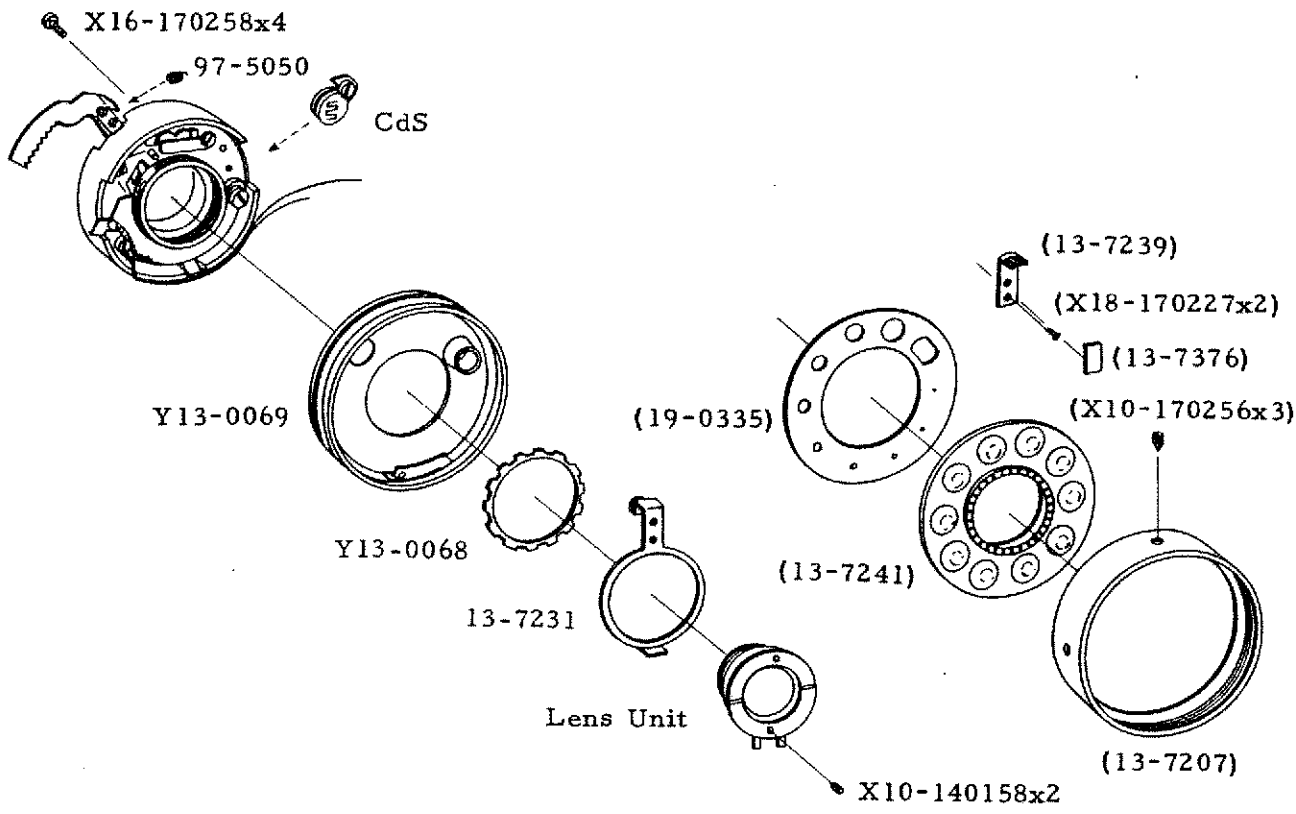
	Work	Specifications
1.	Removal of aperture disk	Remove three screws (X10-170256), shutter ring (13-7207), multiple lens (13-7241) and aperture disk (19-0335).
2.	Removal of focusing knob	Remove cover (13-7376), two screws (X18-170227) and focusing knob (13-7239).
3.	Removal of manual knob	Remove three screws (X10-140157) and manual knob (19-9508).
4.	Removal of shutter button ring	Remove shutter button ring (14-0822) and counter window (14-0826).
5.	Removal of rewind button	Remove two screws (X91-202454), rewind button frame (13-7225) and rewind button (13-7224).
6.	Removal of front & back cover unit	Remove winding grip unit (18-0357) by using grip removing tool (T0199-18-0357-1T), then take off three screws (X18-200228) and front & back cover unit (18-0361).

FRONT COVER DISASSEMBLING

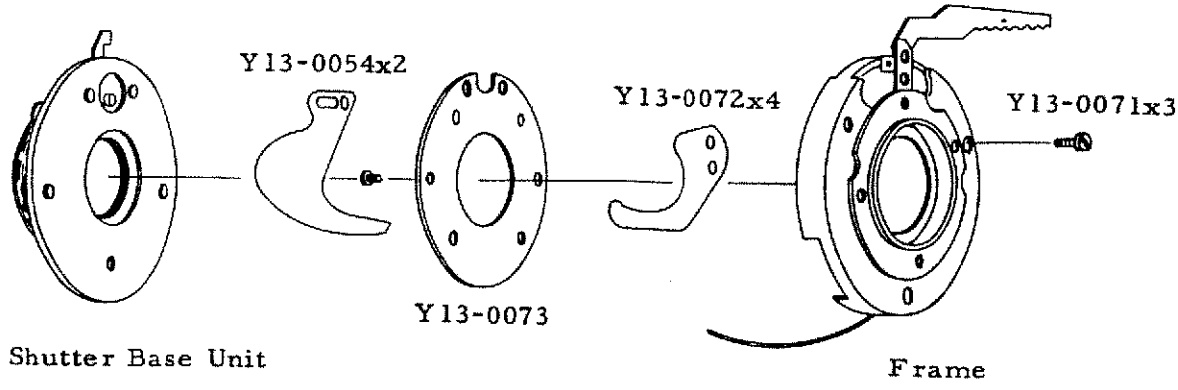


	Work	Specifications
		Remove aperture disk (19-0335), focusing knob (13-7239), manual knob (19-9508) and shutter button ring (14-0822) as in the procedure for front & back cover disassembling.
1.	Removal of name plate	Remove name plate (97-8972) and two screws (X18-200257).
2.	Removal of flash terminal	Remove flash terminal (19-9509) by using terminal removing tool (T0199-19-9509-1).
3.	Removal of front cover	Remove screw (X19-200306) and front cover (19-0327).

SHUTTER DISASSEMBLING

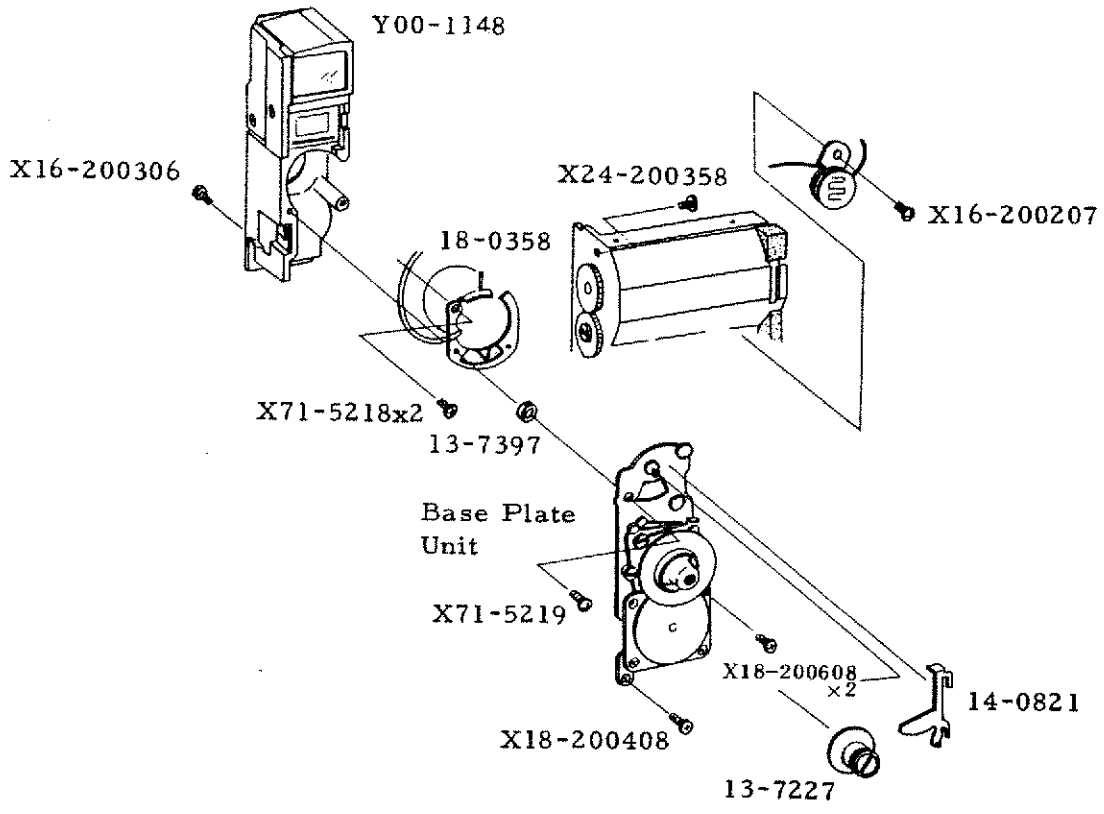


	Work	Specifications
		Remove aperture disk (19-0335) and focusing knob (13-7239) as in the procedure for front & back cover disassembling.
1.	Removal of lens unit	Loosen two screws (X10-140158) and remove the lens unit.
2.	Removal of shutter speed adjusting ring	Remove nut (Y13-0068), speed change ring (Y13-0069) and focusing lever (13-7231), and EE cam coil spring (97-5050) and CdS element off the shutter base unit.
3.	Removal of shutter base unit	Remove four screws (X16-170258) from the aperture side, and take off the shutter base unit with care not to damage the EE cam. Remove the soldered wire.



Work	Specifications
1. Removal of shutter blades	Remove three screws (Y13-0002), and take off the shutter base unit from the frame. Then extract two shutter blades (Y13-0054).
2. Removal of aperture blades	Remove two screws (Y13-0071) and stationary bearing ring (Y13-0073), then extract four diaphragm blades (Y13-0072).

BASE PLATE AND EXPOSURE METER DISASSEMBLING



	Work	Specifications
1.	Removal of viewfinder unit	Remove manual boss (13-7227) and clamp (14-0821). Take off screw (X71-5219) and spacer (13-7397) from the base plate side, and screw (X24-200358) and viewfinder eyepiece side screw (X16-200406) from the cassette chamber (main body) side. Then detach viewfinder unit (Y00-1148).
2.	Removal of exposure meter unit	Remove two screws (X71-5218), exposure meter unit (18-0358), screw (X16-200207) and the CdS element.
3.	Removal of base plate	Remove screw (X18-200408) and two screws (X18-200608), then take off the base plate with care not to damage spring and other parts.

Work	Specifications
Inspection	1. Check if the aperture smoothly works by operation of the aperture lever.
	2. Check if the shutter is charged and released smoothly, and if the shutter speed ring rotates smoothly.
Mounting	1. Fixing EE cam:

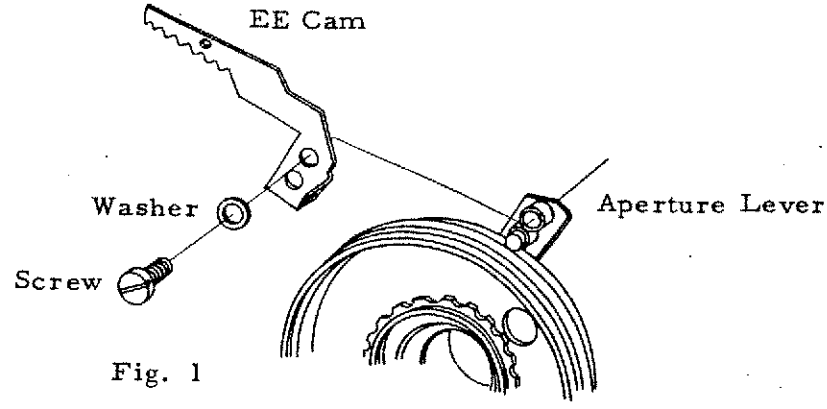


Fig. 1

Set the EE cam on the aperture lever as illustrated above, and tighten it moderately with the screw.

n.b. Carefully tighten the screw since the aperture lever easily deforms itself.

2. Attach click spring and click dowel for the aperture disk.

3. Fixing release ring:

3.1 Check if the coil spring and hook lever are attached at the correct positions of the release ring.

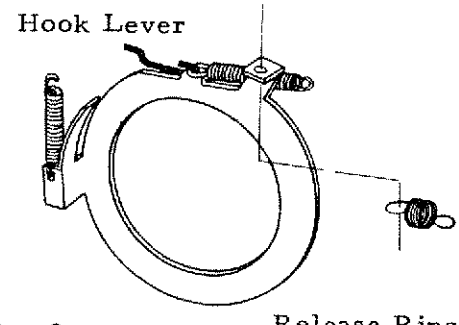


Fig. 2

3.2 The release ring should be positioned with the hook lever being on the upper side, as illustrated below.

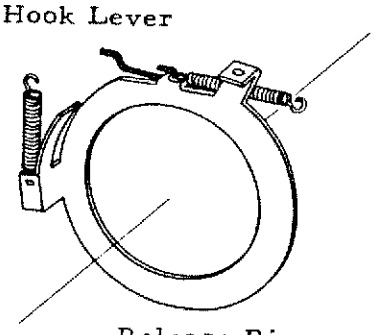


Fig. 3

3.3 Attach the intermediate ring between the release ring and the shutter base.

4. Fixing shutter

4.1 Charge the shutter

4.2 The shutter should be positioned so that the shutter release lever is under the raised portion on the left side, facing the release ring, of the ring.

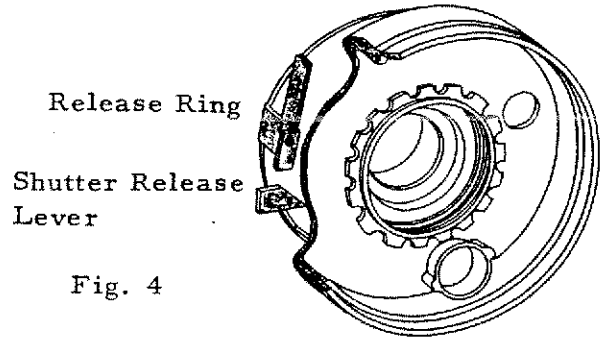


Fig. 4

4.3 Tighten the screw.

4.4 Check if the release ring and intermediate ring move lightly.

4.5 Attach the bell crank, and connect the EE cam spring.

1. Adjustment of charge allowance

CHECK: 1. Charge the shutter by rotating the sprocket.

2. Charge the shutter again and measure how much charge lever 1 moves.

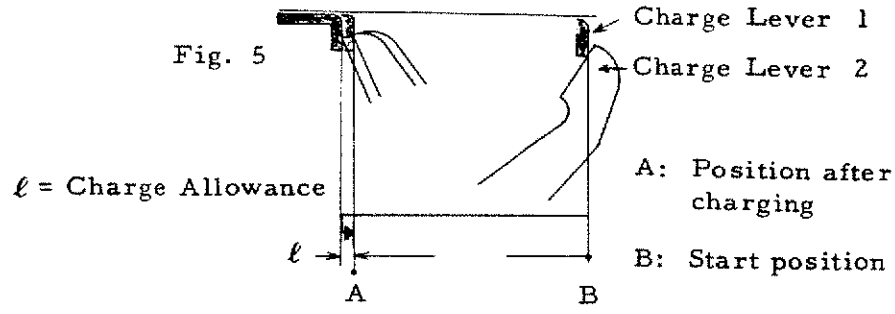


Fig. 5

STANDARD: Charge lever 1 should move 0.4 ~ 0.6mm.

ADJUSTMENT: Bend the charge lever bend with a pair of pliers.

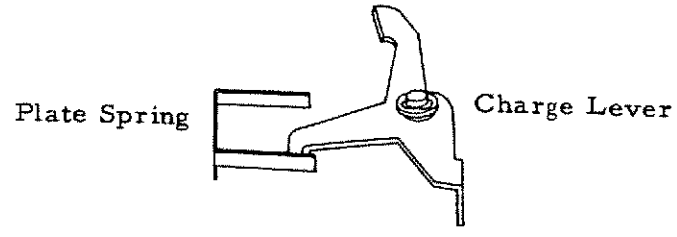


Fig. 6

2. Adjustment of plate spring position

CHECK: 1. Turn the sprocket, and stop turning it at the moment when the end of the charge lever comes off the projection of the index cam.

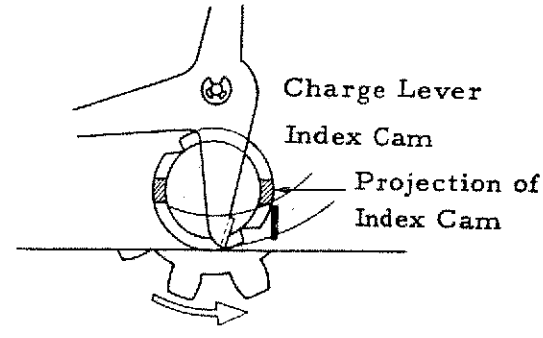


Fig. 7

2. Then check how much arm B of the charge lever overlaps the index cam when arm A of the charge lever is pushed against the plate spring.

STANDARD: Arm B of the charge lever should be at the position shown in Fig. 8.

ADJUSTMENT: Bend the plate spring.

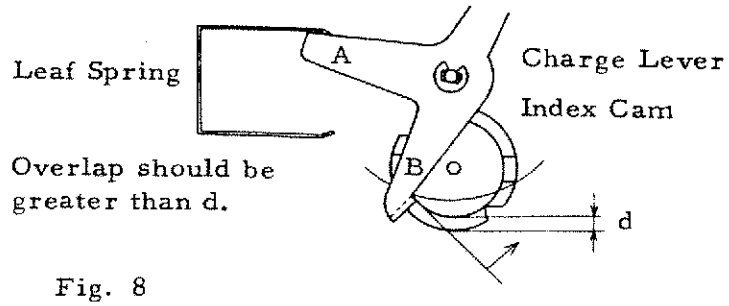


Fig. 8

3. Adjustment of timing

CHECK: 1. Let charge lever 1 lightly touch charge lever 2.

2. Under the above condition, turn the sprocket reversely until the projection of the index cam touches the bend of the charge lever.

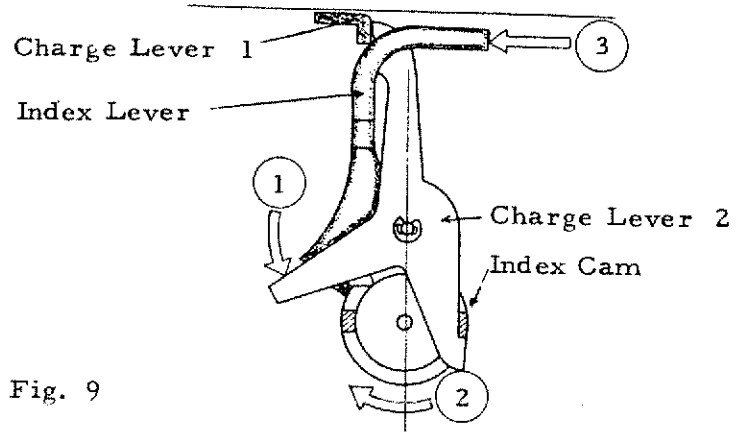


Fig. 9

3. Let the index lever touch the index cam, and check what position the claw of the index lever is against the V-shape groove of the cam.

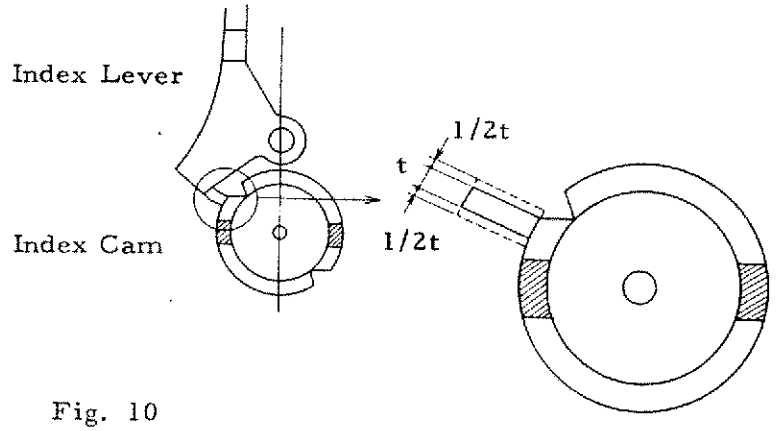


Fig. 10

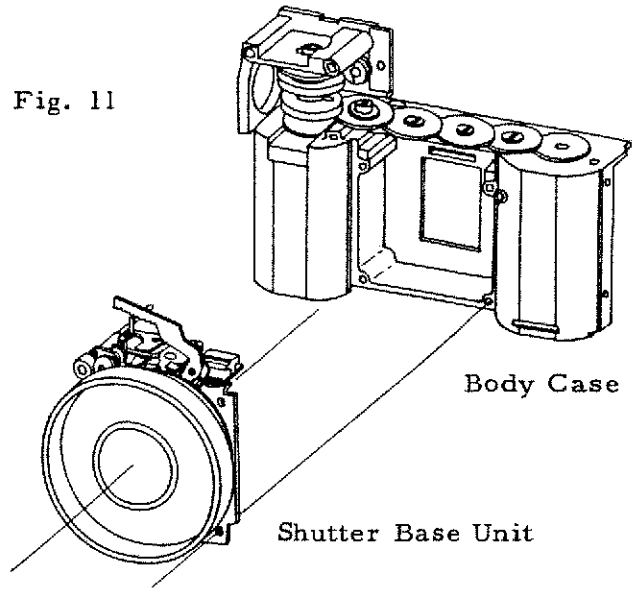
STANDARD: Tolerance is half of the claw's thickness to the both sides from the full line positions illustrated right above in Fig. 10.

ADJUSTMENT: Detach the index lever from the shutter base, and bend the claw of the lever with a pair of pliers.

Attachment

5. Attaching shutter base to body case:

Fig. 11



5.1 Move the aperture lever full counterclockwise and insert the bell crank pin into the hole in the body case.

5.2 Insert the pinion pin into the hole.

5.3 Tighten screws.

EXPOSURE METER ADJUSTMENT

Work	Specifications
Inspection	Gently blow the needle and check its movement.
	n. b. 1. When replacing the meter, the CdS element should also be exchanged.
	2. When handling the meter, be careful not to bend the needle and clamp needle.
Attachment	1. Fixing exposure meter:
	Tighten the meter with two screws at positions A and B.

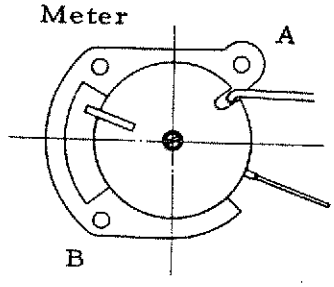


Fig. 12

2. Soldering variable resistor:

Solder the lead to terminal A of the variable resistor, then solder terminal B to the positive (+) side of the battery box within a minimum period of time.

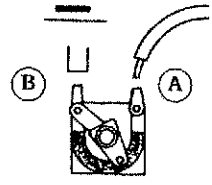


Fig. 13

3. Soldering CdS element
Cover the soldered portion with a vinyl pipe and fix it with ply-bond.

Meter circuit diagram

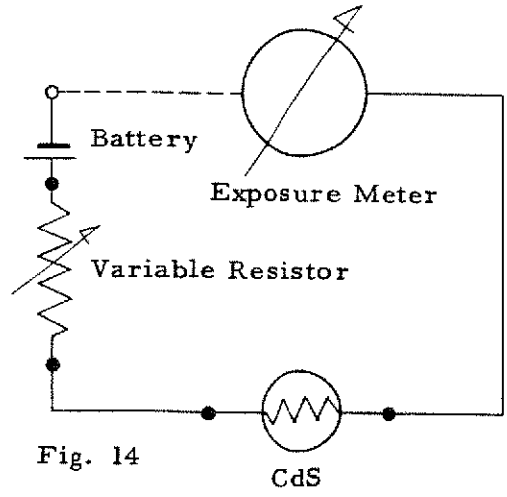


Fig. 14

4. Fixing viewfinder unit:

   Be careful not to bend the meter needle.

Adjustment

1. Adjustment of clamp needle position
   Check if the needle is at the center between the clamp plate plate and the base plate.
   If it is off the center, correct it by bending the needle.

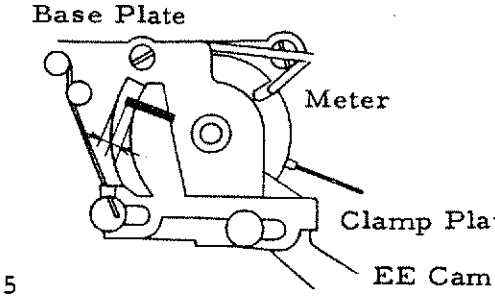


Fig. 15

2. Adjustment of aperture

CHECK:
1. If a clamp plate is provided, remove the clamp plate spring and move the plate to the right-hand side.
2. Guide the clamp needle with your finger, and check the aperture from the aperture disk side when the EE cam engages the F2.8 and F8 teeth respectively.

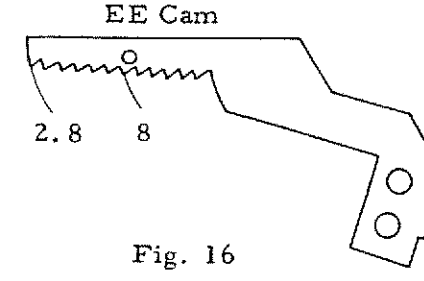


Fig. 16

STANDARD: Aperture [↕] Dmm $D^1 > D > D^2$

F	D^1	D	D^2
2.8	7.39	6.42	5.45
8	3.34	2.20	1.665

Fig. 17

ADJUSTMENT: Loosen the EE cam set screw, and move the cam as illustrated.

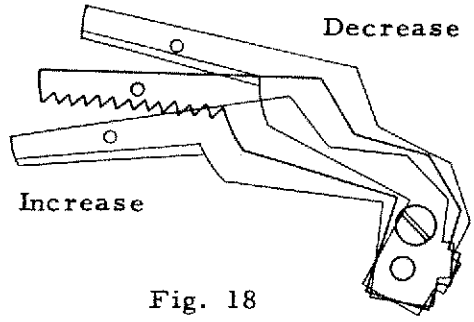


Fig. 18

n.b. 1. The aperture lever, to which the EE cam is fixed, easily deforms itself.
Attach a screwdriver under the lever when conducting the above adjustment.

2. Check if the EE cam is in contact with the base plate and if the cam moves smoothly.

3. Adjustment of meter needle position:

CHECK: Guide the clamp needle with your finger, and check the needle position in the viewfinder when the needle engages the F8 tooth of the EE cam.

STANDARD: 1. Within ±1/4F from the index.
Width of the needle should overlap the index.

2. At F8 the needle should be rectangular to the scale.

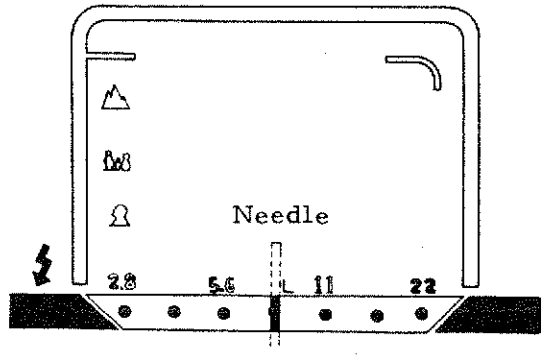


Fig. 19

ADJUSTMENT: Bend the needle.

n.b. 1. Do not make the clearance between the finder Mask and needle too large.

2. The needle should not touch the zone focus index.

When the adjustment described in Items 1 ~ 3 above has been finished, set the spring of the clamp plate and attach the manual knob.

4. Adjustment of manual operation

STANDARD: 1. Clearance between the manual knob and needle should be 1 ~ 1.5mm.

2. The needle should move smoothly in manual.

3. Instability on both sides should be within the arrow mark.

4. When the shutter button is pressed five times at F22, the needle should not move more than 1F.

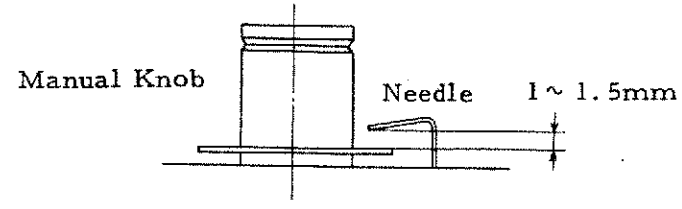


Fig. 20

5. Adjustment of deflection angle

5.1 Adjustment of deflection angle

STANDARD: k = 17.5

EV	cd/m^2	ASA	SS	F	Limit
9	89.4	100	1/30	4	1/2 F
11	358	100	1/30	8	1/2
14	2860	100	1/250	8	1/2

Fig. 21

ADJUSTMENT: 1. Use the variable resistor for adjusting the deflection angle at high illumination.

2. Cover the CdS element with black ink for adjusting the deflection angle at low illumination.

3. Cover the CdS element with black ink or correct the zero-adjustment lever for adjustment of general deflection angle.

5.2 Adjustment of high and low warning indication

STANDARD:

EV	ASA	S.S	Position of Needle
9	16	1/30	Should enter the "low" warning mark.
14	400	1/30	Should enter the "high" warning mark.

Fig. 22

ADJUSTMENT: Use the variable resistor and cover the CdS element with black ink. After this adjustment, conduct re-check as in Item 5.1 above.

5.3 Zero adjustment of meter

STANDARD: When the camera is positioned correctly setting at S0, the needle should enter the arrow mark or still acceptable if the needle goes over the arrow mark.

ADJUSTMENT: Push aside the battery retainer spring and move the S0 adjusting lever right or left.
When zero adjustment has been conducted, be sure to re-check as in Items 5.1 and 5.2.

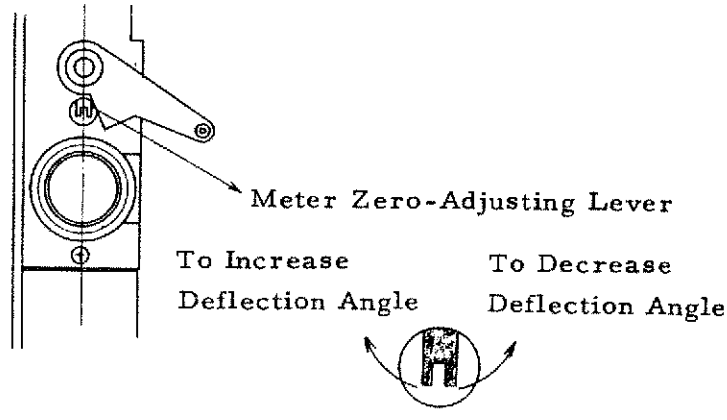


Fig. 23

Work	Specifications
Disassembling	n. b. When removing the governor drum, dissolve the bonding agent which fixes the drum, then evenly extract the drum from the arrow position shown in Fig. 24.

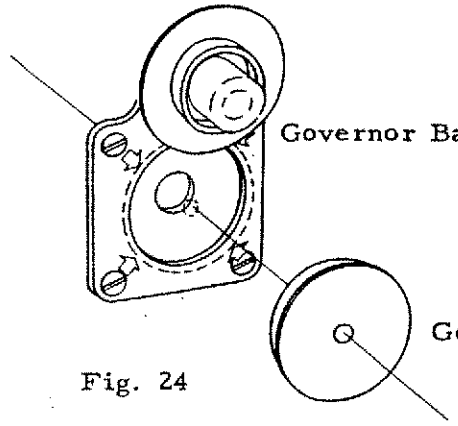


Fig. 24

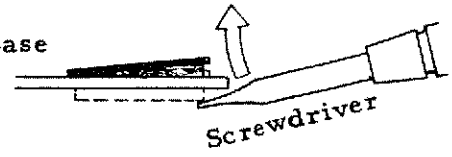


Fig. 25

If the drum is lifted as shown by an arrow in Fig. 25, it must be careful because the shaft attached to the drum may tilt or the edge of the drum may have bur, possibly resulting in faulty winding.

Assembly of base plate

1. Attachment of stop claw

   1.1 Vertical end play of the stop claw should be less than 0.5mm measured at the end of the claw.

   1.2 The claw should move lightly and smoothly.

2. Attachment of governor base

   2.1 Attach the shutter button to the base.

   2.2 Assemble the rewind lever, stopper and spring together as illustrated in Fig. 26.

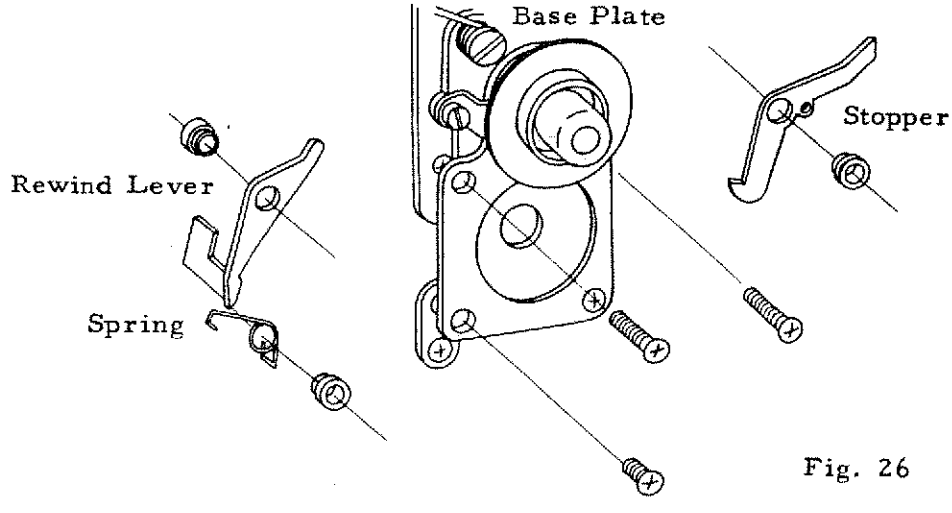


Fig. 26

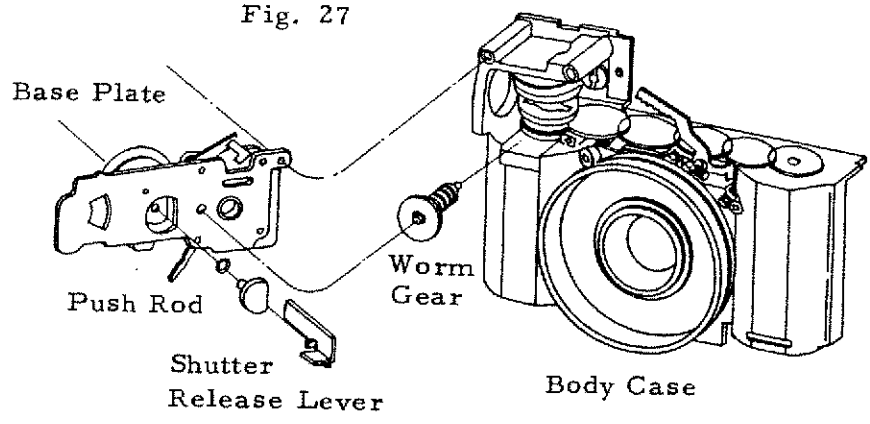
Attachment

1. Charge the shutter and drop the index lever into the V-shape groove.

2. Attach the worm gear to the body case, and the push rod and shutter release lever to the base plate.

3. Attach the base plate to the body case.

Fig. 27



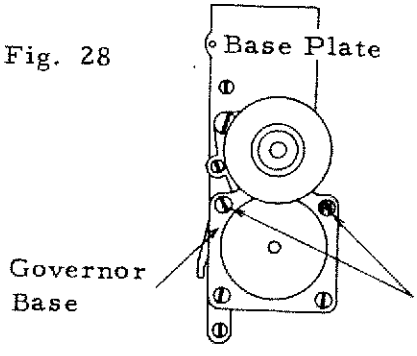
Adjustment

1. Adjustment of take-up gear rotation

CHECK: After tightening the base plate with screws, gently rotate the take-up spool in the take-up direction, and check if the take-up spool rotates smoothly.

ADJUSTMENT: 1. Loosen the two screws that tighten the governor base and base plate, and move the base plate.

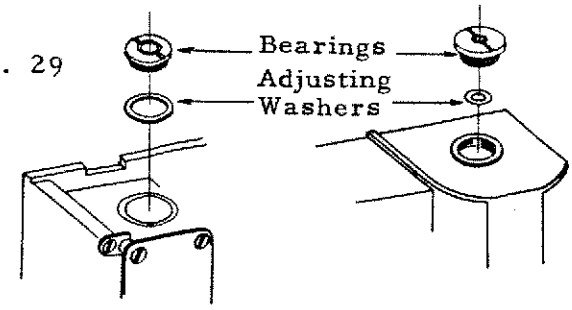
Fig. 28



2. If the teeth of the helical gear are deformed, replace it.

3. If the position of the helical gear is improper in the vertical direction, remove bearings shown in Fig. 29 and increase or decrease the number of washers at the upper or lower end of the take-up shaft.

Fig. 29



Upper End (Helical Gear Side) Bearing of Take-Up Shaft

Lower (Spool Side) End Bearing of Take-Up Shaft

n.b. After tightening the bearings, confirm that the take-up shaft has play by depressing the top end of the shaft.

4. Slight catching when the take-up spool rotates, some what may be corrected by weakening the corrugated washer for spool torque.

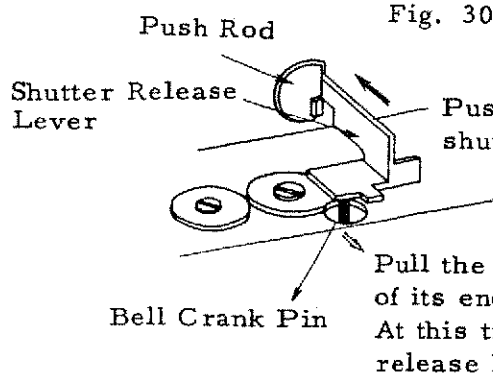
n.b. If the washer is weakened too much, the rewind button cannot be reset quickly when rewind shifts to take-up.

STANDARD: Take-up spool torque:
50 ~ 100 g-cm

2. Adjustment of shutter release

CHECK: Push the shutter release lever fully to the shutter button side, bring the bell crank pin by the amount of its end play to the opposite direction, and measure how much the shutter release lever and pin overlap one another.

Fig. 30


Push Rod
Shutter Release Lever
Push the shutter release lever to the shutter button side.
Pull the bell crank pin by the amount of its end play along the arrow direction. At this time, the overlap of the shutter release lever and pin should be 0.5mm.
Bell Crank Pin

STANDARD: The shutter release lever and bell crank pin should overlap 0.5mm one another.
(Diameter of pin: 1.5mm)